ORDER No.AD0001029C8

Service Manual

Portable MD Player

SJ-MJ75

Colour

(S).....Silver Type

Areas

EB.....Great Britain.

EG.....Europe.

GH.....Hong Kong.

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SPECIFICATIONS

Specifications

Mechanism unit:RAE1611Z Mechanism Series

● Audio

System:	**MiniDisc digital audio system**
Laser:	**Semiconductor laser (=790 nm)**
Sampling frequency:	**44.1 kHz**
Decoding:	**Adaptive Transform Acoustic Coding (ATRAC)**
No. of channels:	**2 (left and right, stereo)**
	1 (monaural)
Frequency response:	**20 Hz-20 kHz (+0 dB, -8dB)**
Wow and flutter:	**Below measurable limit**

● General

Output Jack:	**Phones, 14 Ω**
Power output:	**5 mW+5 mW**
Power supply	
Rechargeable battery:	**DC 1.2V**
	(included rechargeable battery)
Battery:	**DC 1.5V (One LR6, AA, UM-3 battery)**
Dimensions (WxHxD)	
Cabinet dimensions:	**71.5x78.5x15.4 mm**
incl.projecting parts:	**72.8x79.9x15.4 mm**
Weight:	**86 g (with battery)**
	61 g (without battery)

● Play time

(When used in hold mode, at 25°C, on a flat, stable surface)

Battery type:	**Play time**
Rechargeable:	**About 10 hours**
Panasonic alkaline:	**About 34 hours**

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Both together: **About 44 hours**

● **Charger**

Input: **AC120-240 V (EG)/ AC230-240 V (EB)/ AC220V (GH), 50 Hz 4W**

Notes:

- **The play time may be less depending on the operating conditions.**
- **Specifications are subject to charge without notice. Weight and dimensions are approximate.**

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

1. Precaution of Laser Diode

CAUTION:

This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted fromthe pickup lens.
Wave length:790 nm
Maximum output radiation power from pickup: 100 μ W/VDE
Laser radiation from the pickup lens is safety level,but be sure the followings:

1. Do not disassemble the optical pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjsuted.
3. Do not look at the focus lens using optical insturments.
4. Recommend no to look at pickup lens for a long time.

ACHTUNG:

Dieses Produkt enthält eine Laserdiode. Im eingeschalteten Zustand wird unsichtbare Leserstrahlung von der
Laserinheit adgestrahit.
Wellenlänge: 790 nm
Maximale Strahlungsleistung der Lasereinheit: 100 μ W/VDE
Die Strahlungan der Lasereinheit ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinhit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlines blicken.
4. Nicht über längere Zeit in die Fokussierlines blicken.

2. Accessories

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- **Battery case.....1pc.**
  (RFA1136-H)
- **Carrying case.....1pc.**
  (RFC0056-K)
- **Remote control.....1pc.**
  (RFEV025P-SM)
- **Stereo earphones.....1pc.**
  (RFEV319P-S1A)

For EB area

- **Charger.....1pc.**
  (RP-BC155AEBY)

For EG area

- **Charger.....1pc.**
  (RP-BC155AEYB)

For GH area

- **Charger.....1pc.**
  (RP-BC155AGH)

For EB, EG areas

- **Rechargeable battery with carrying case.....1pc.**
  (RFKFBP140HSY)

For GH area

- **Rechargeable battery with carrying case.....1pc.**
  (RP-BP61GY-S)

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3. Location of Controls

4. Handling Precautions for Traverse Deck (Mechanism Unit)

The laser diode in the mechanism unit (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.So, be careful of electrostatic breakdown during repair of the mechanism unit (optical pickup).

4.1. Mechainsm Unit (optical pickup)

1. **Do not subject the mechanism unit (optical pickup) to static electricity as it is extremely sensitive to electrical shock.**
2. **Before removing the mechanism unit (optical pickup), the short land on the flexible board is shorted with a solder build-up to prevent damage to the laser diode. (As shown in Fig.1.)**
3. **It is a posibility to disconnect if it applies over pressures to the flexible P.C.B., as take care of handling the flexible P.C.B..**

Fig.1

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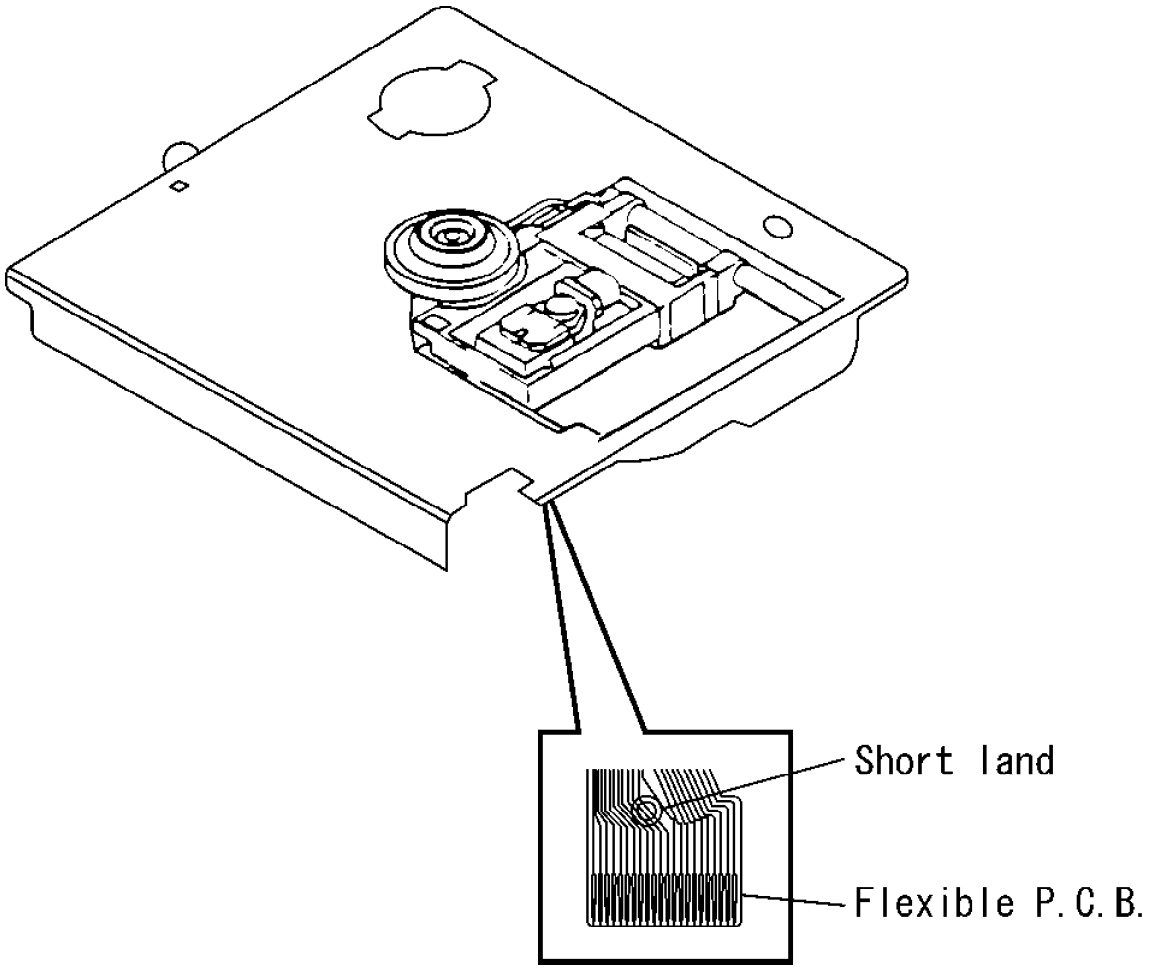

4.2. Caution for Replacement of Mechanism Unit (Optical Pickup)

If you remove the flexible P.C.B. of the optical pickup from the connector of main P.C.B., perform it after shorting with a solder build-up the short land to protect the breaking down by static electricity.
The optical pickup that is supplied as replacement parts is shorted with a solder build-up the short-land of flexible P.C.B. to protect the breaking down by static electricity.
After connecting the flexible P.C.B. of the optical pickup to the connector of main P.C.B., remove the solder build-up on the short-land and confirm that is opened. (As shown in Fig.1)

4.3. Grounding for electrostatic breakdown prevention

1. Human body grounding
Use the anti-static wrist strap to discharge the static electricity from your

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body. (As shown in Fig.2.)

2. Work table grounding

Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet. (As shown in Fig.3)

Caution:

The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).

Fig.2

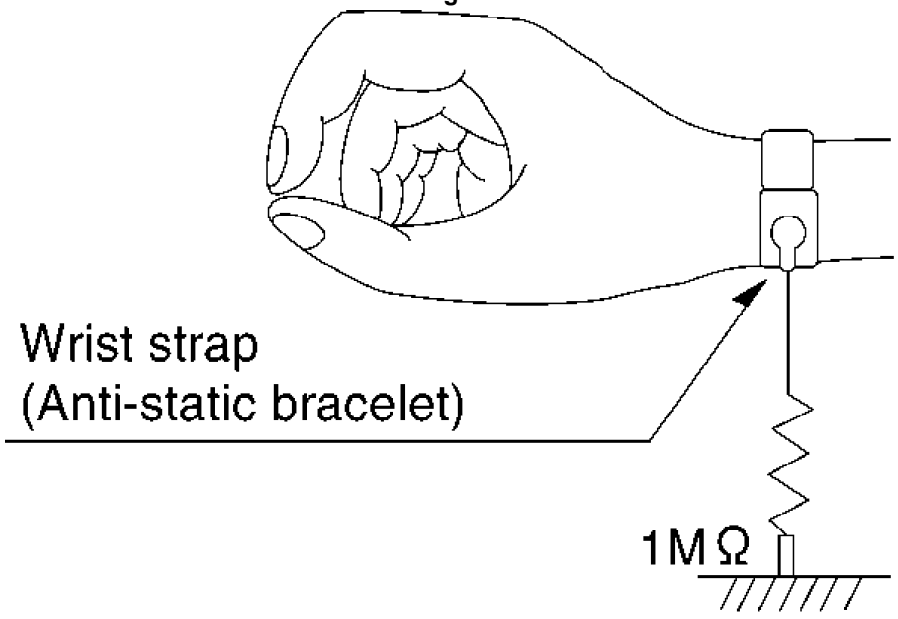

Fig.3

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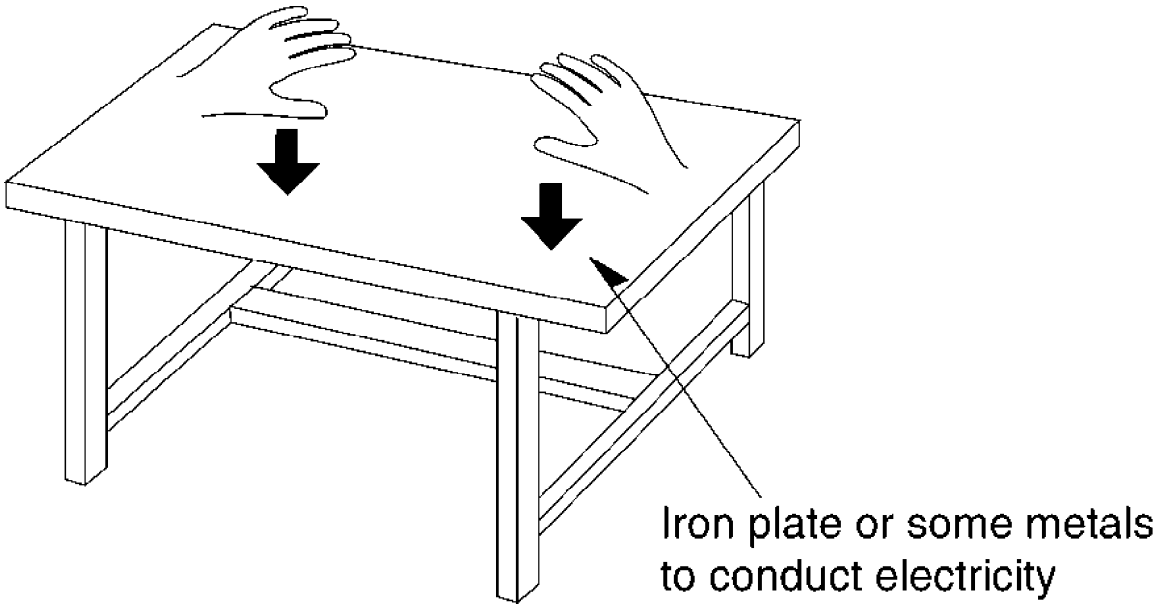

5. Operation Checks and Component Replacement Procedures

- **This section describes procedures for checking the operation of the major printed circuit boards and replaceing the main components.**
- **For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.**
- **After replacing the main components (optical pickup or traverse motor, etc.) of mechanism unit block, change to the adjust mode, and then perform the "ROM/RAM auto-adjustment".**

5.1. Checking for the P.C.B.

5.1.1. Checking for the P.C.B. (A side)

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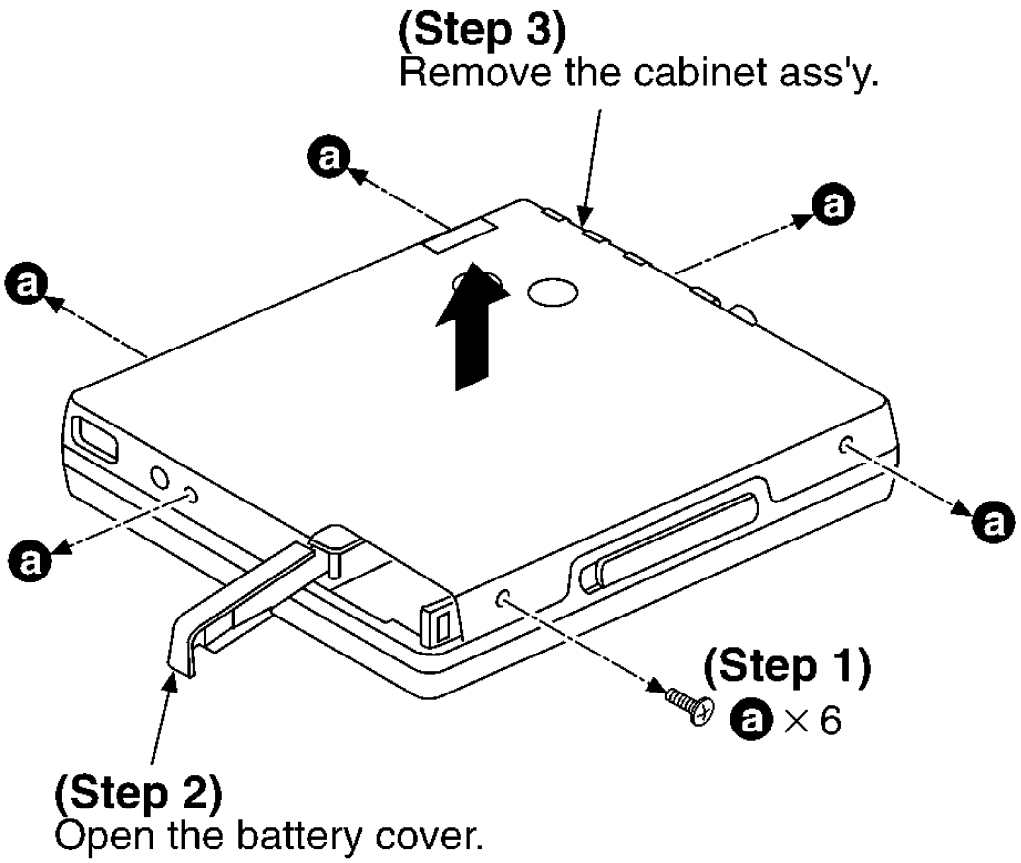

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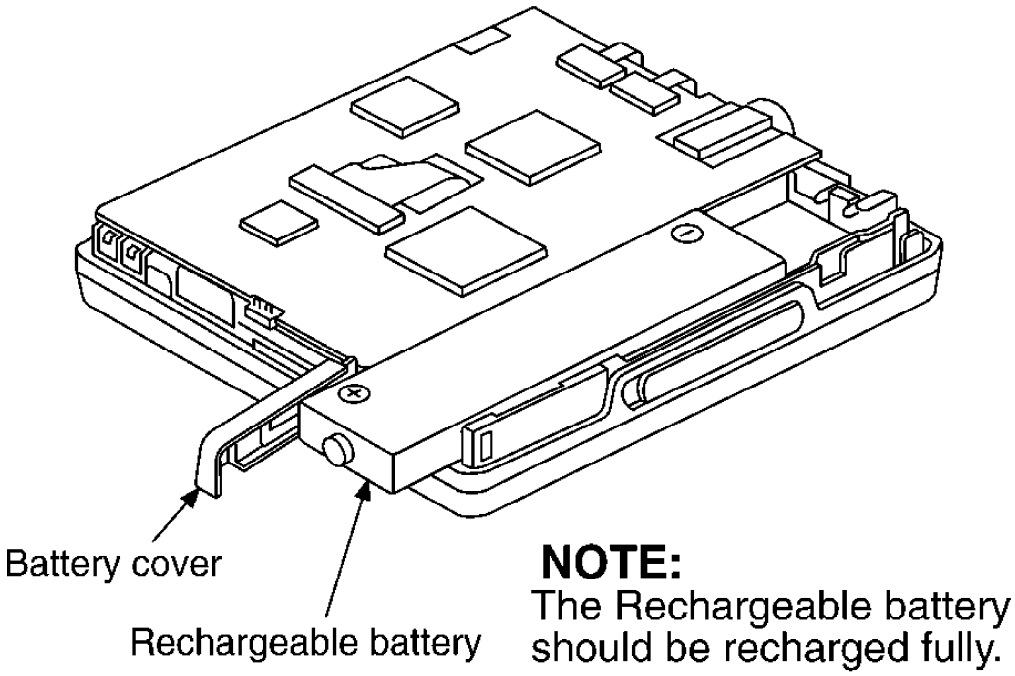
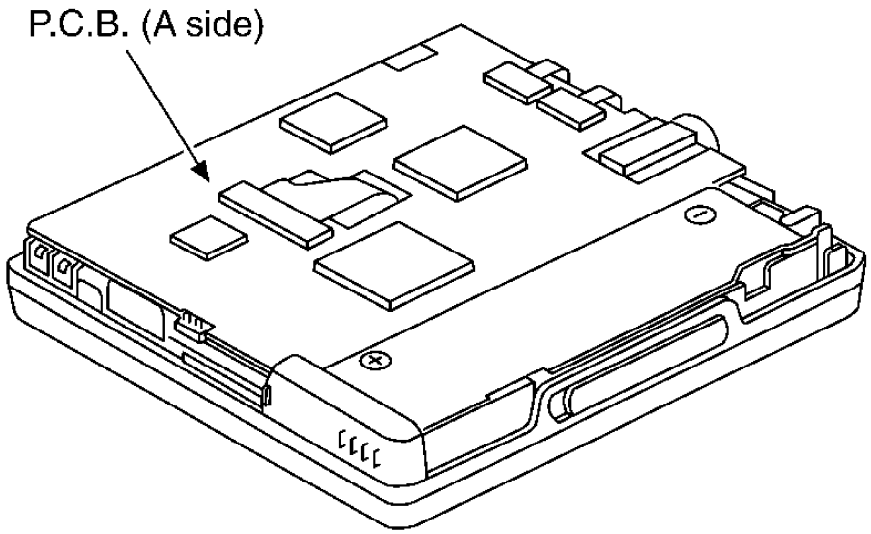
(Step 4)
Store the rechargeable battery,
and then close the battery cover.



- **Check the P.C.B. (A side) as shown below.**



5.1.2. Checking for the P.C.B. (B side)

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- **To check the IC501 on side B of P.C.B., refer to the table 1 and illustration below.**

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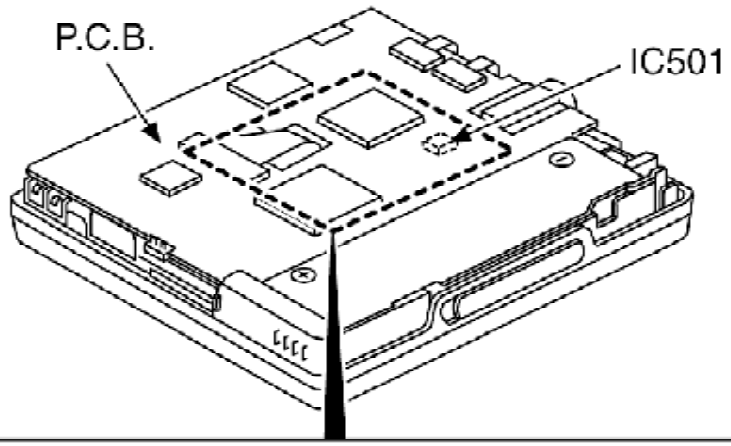

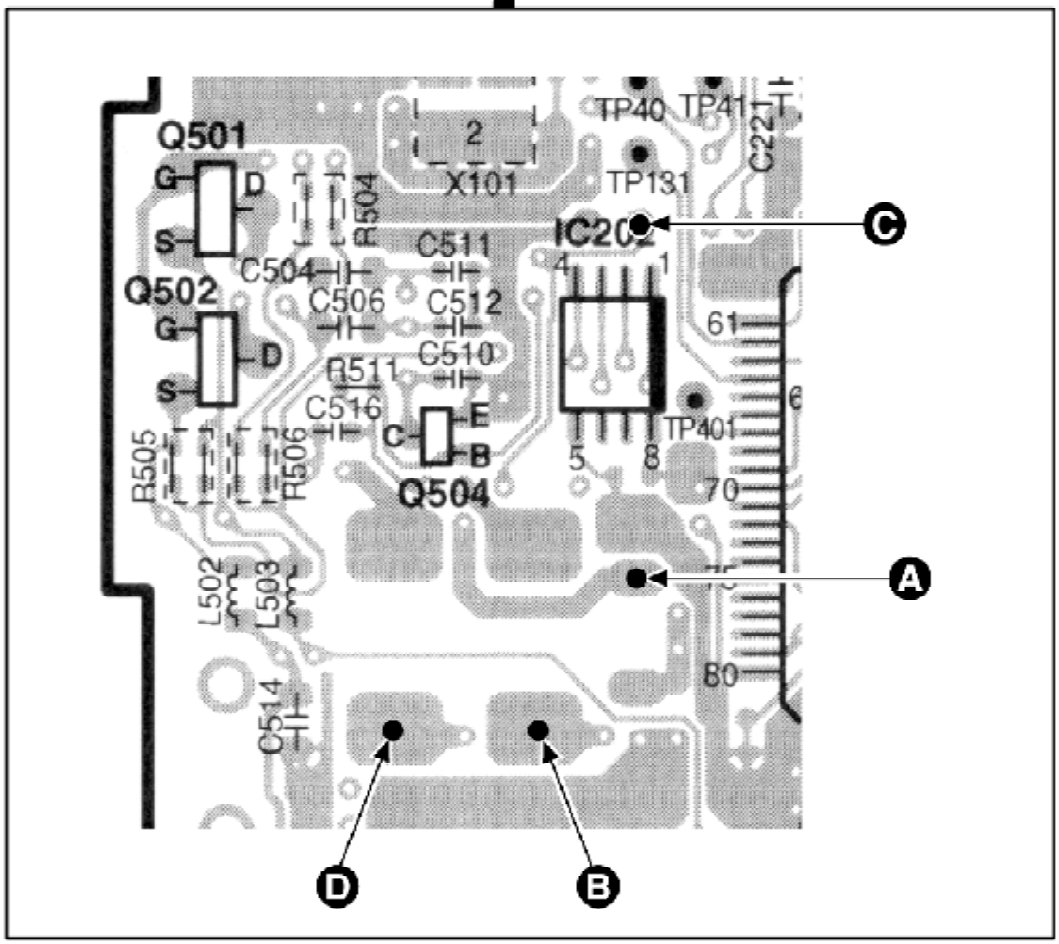

PIN No. of IC501	Check point	PIN No. of IC501	Check point
1	A	6	———
2	B	7	———

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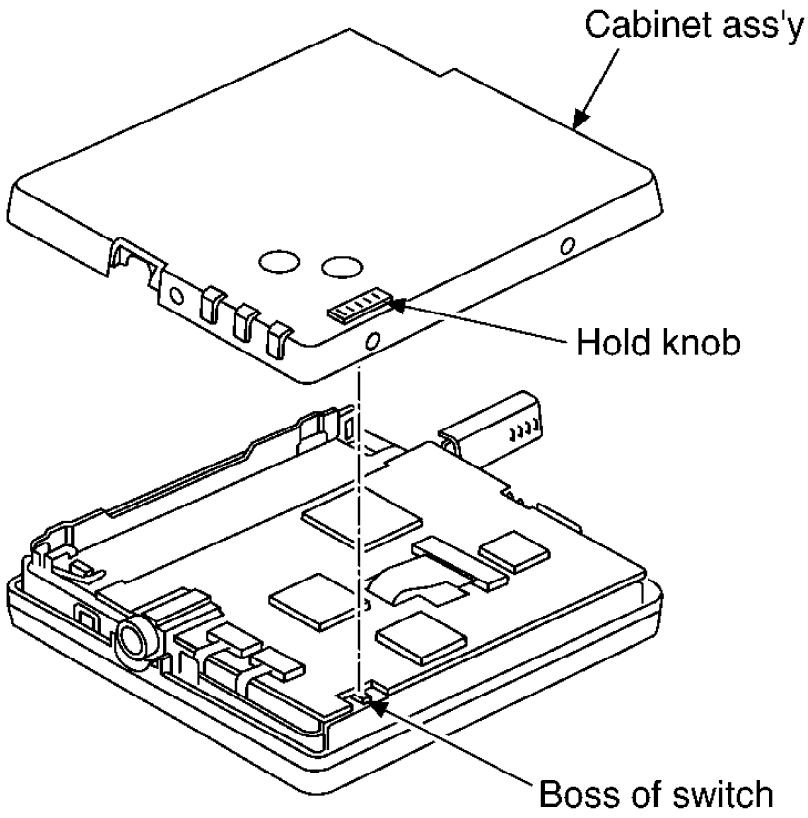
3	———	8	———
4	Ⓒ	9	Ⓓ
5	———	10	GND

Table 1

Notice for installation of the cabinet ass'y

- Make sure the boss of switch are fit in the hold knob when assembling.



5.2. Replacement for the intermediate cabinet

- **Follow the (Step 1) - (Step 3) of item 5.1.1.**

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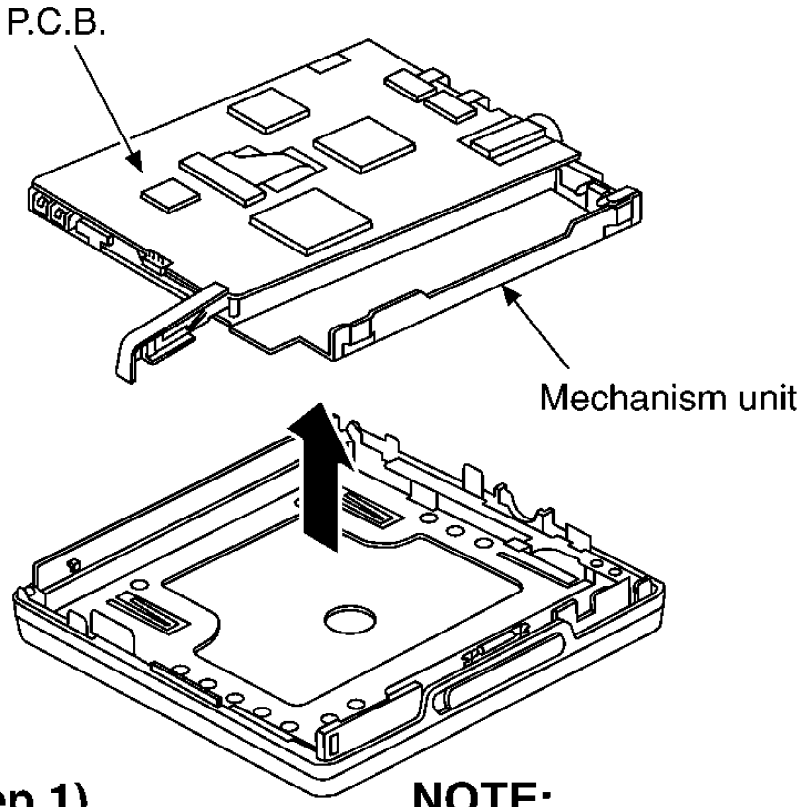

(Step 1)
Remove the P.C.B.
and mechanism unit.

NOTE:
Locate the mechanism unit
as the turn table is faced up.

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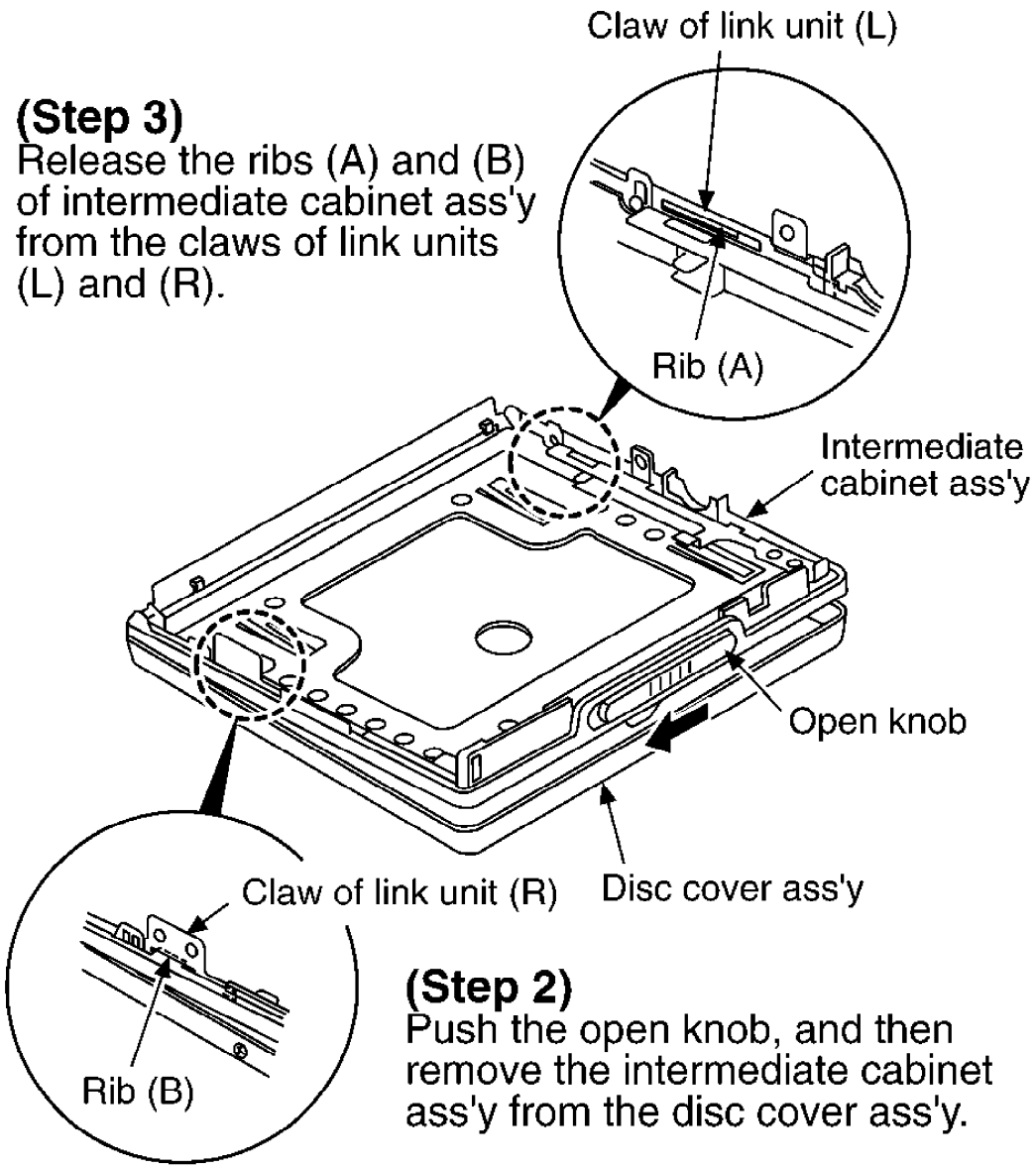

(Step 3)
Release the ribs (A) and (B) of intermediate cabinet ass'y from the claws of link units (L) and (R).

(Step 2)
Push the open knob, and then remove the intermediate cabinet ass'y from the disc cover ass'y.

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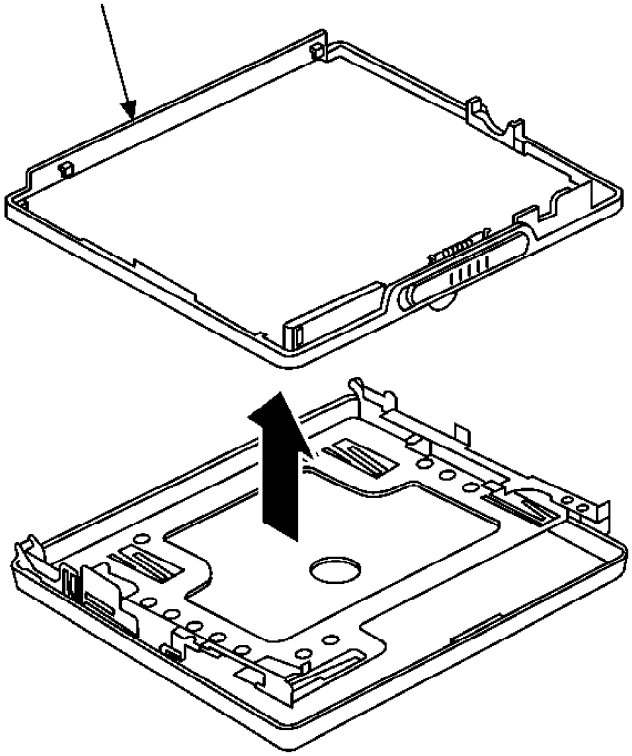
(Step 4)
Remove the intermediate cabinet ass'y.



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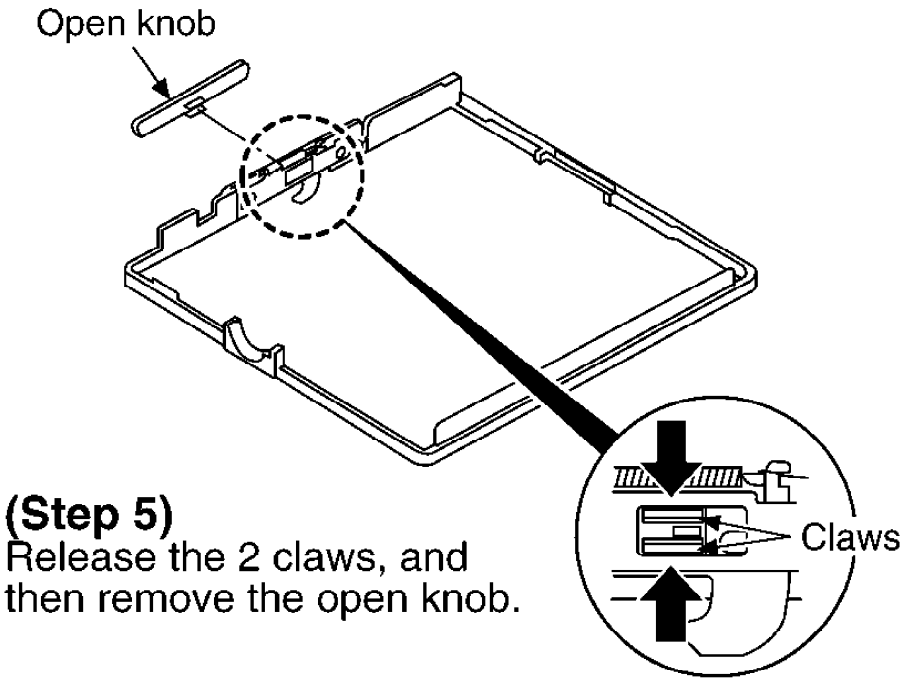
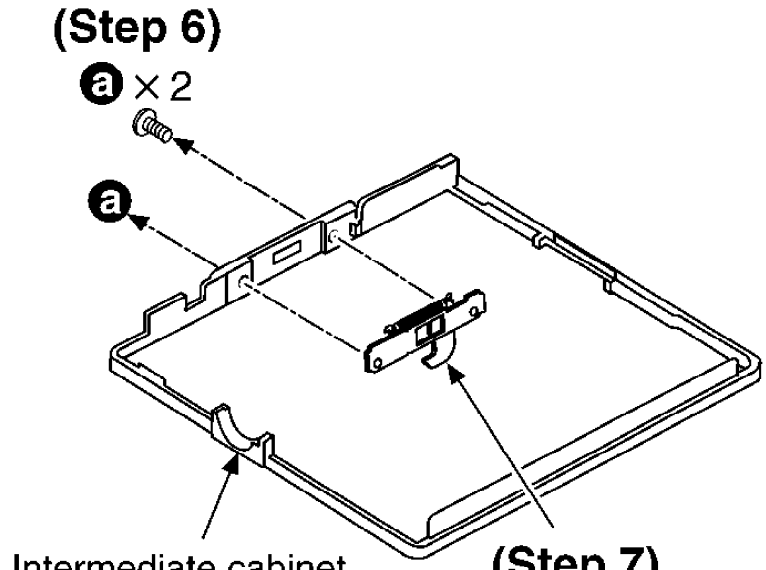


(Step 5)
Release the 2 claws, and
then remove the open knob.



(Step 7)
Remove the lock unit.

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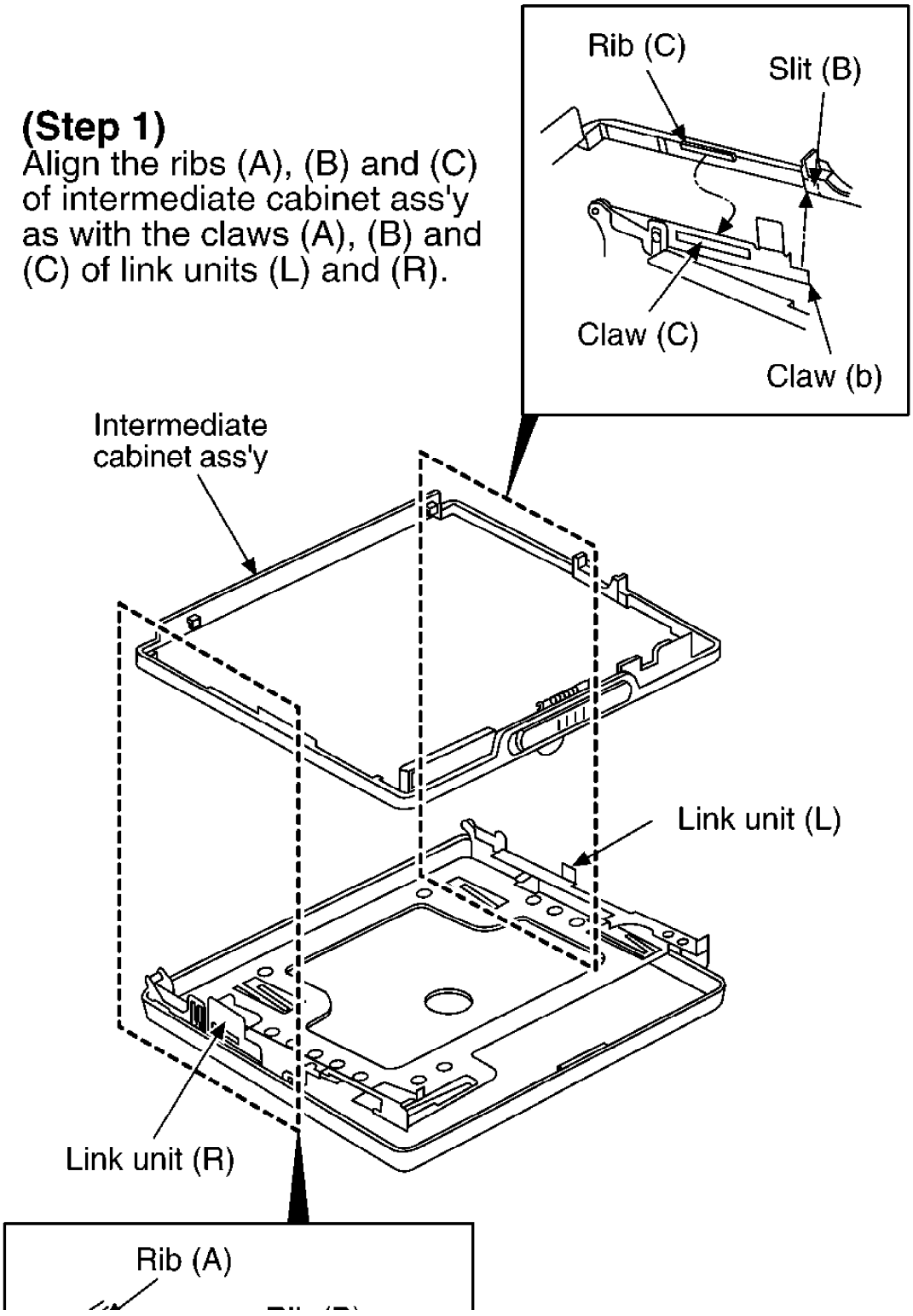
Installing the intermediate cabinet ass'y

(Step 1)
Align the ribs (A), (B) and (C) of intermediate cabinet ass'y as with the claws (A), (B) and (C) of link units (L) and (R).



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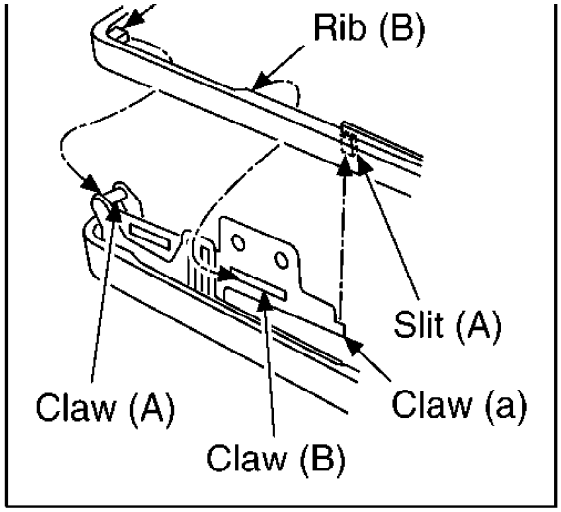

(Step 2)
Align the slits (A) and (B) of intermediate cabinet ass'y as with the claws (a) and (b) of link units (L) and (R).

5.3. Replacement for the disc cover ass'y

- **Follow the (Step 1) - (Step 3) of item 5.1.1.**
- **Follow the (Step 1) - (Step 4) of item 5.2.**

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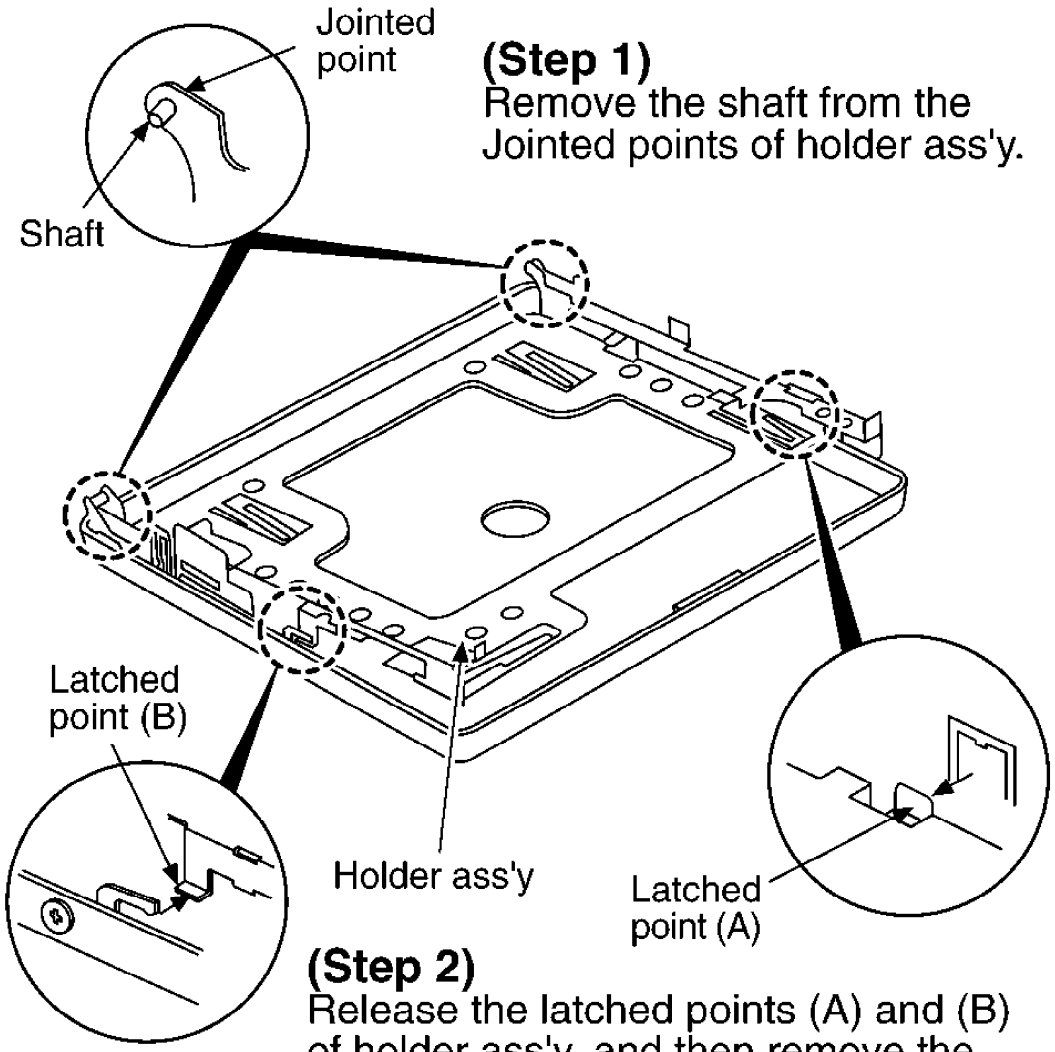

(Step 1)
Remove the shaft from the Jointed points of holder ass'y.

(Step 2)
Release the latched points (A) and (B) of holder ass'y, and then remove the holder ass'y

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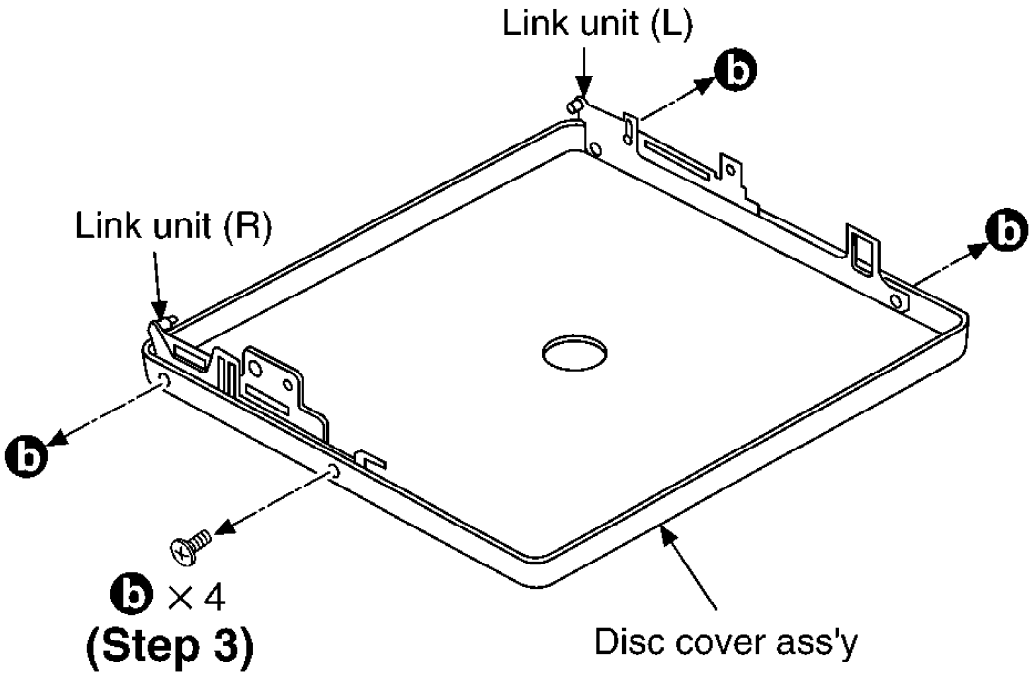
(Step 4)
Remove the link units (L) and (R).



5.4. Replacement for the traverse motor

- **Follow the (Step 1) - (Step 3) of item 5.1.1.**

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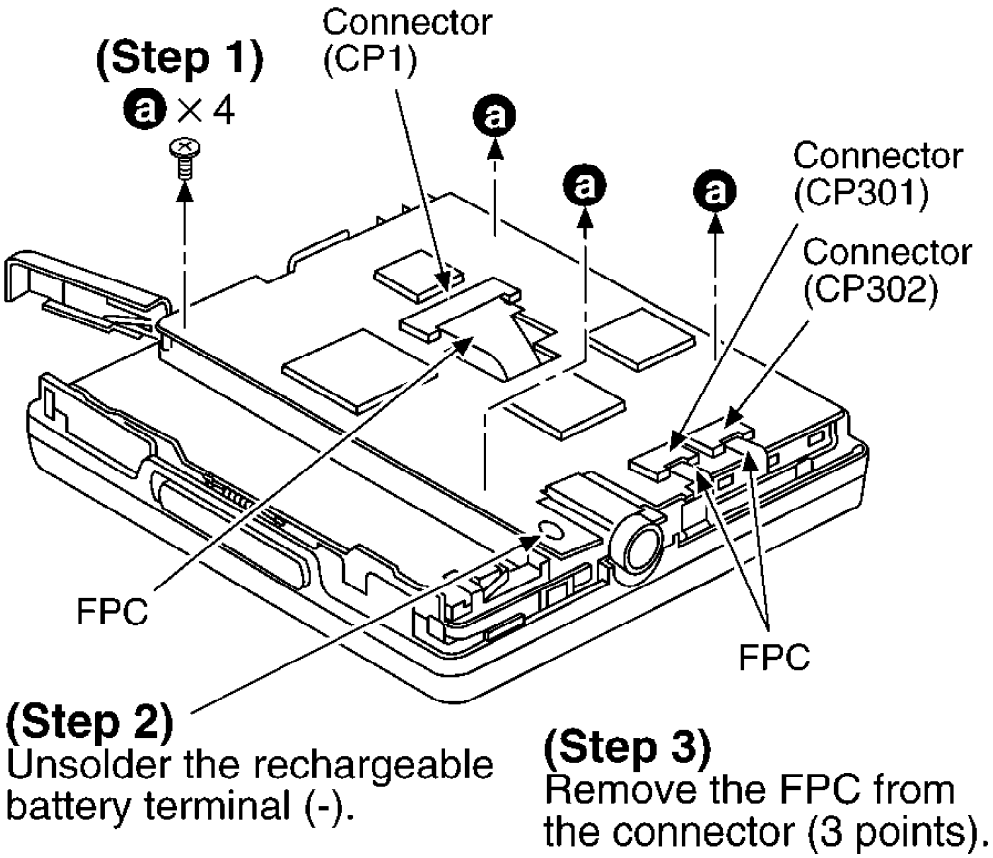

(Step 2)
Unsolder the rechargeable battery terminal (-).

(Step 3)
Remove the FPC from the connector (3 points).

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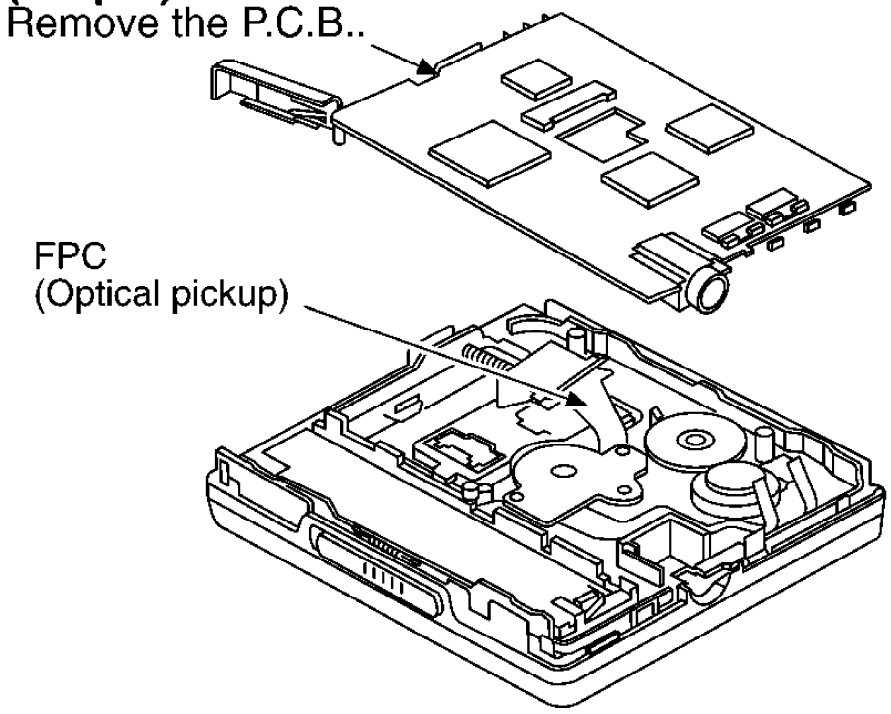
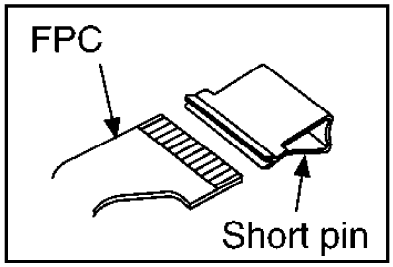
(Step 4)
Remove the P.C.B..



NOTE:
Insert a short pin into the traverse unit FPC board.
(Refer to "Handling Precautions for Traverse Deck".)



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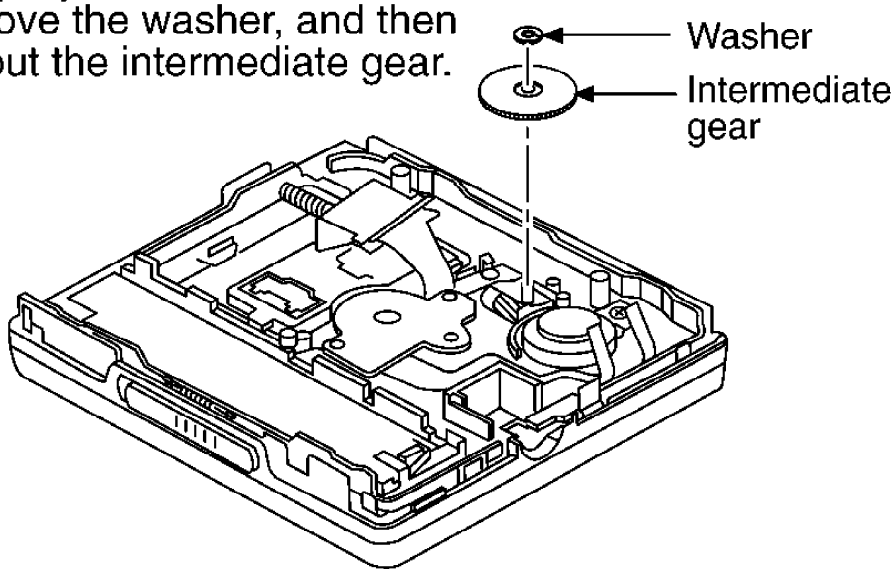
(Step 5)

Remove the washer, and then pull out the intermediate gear.



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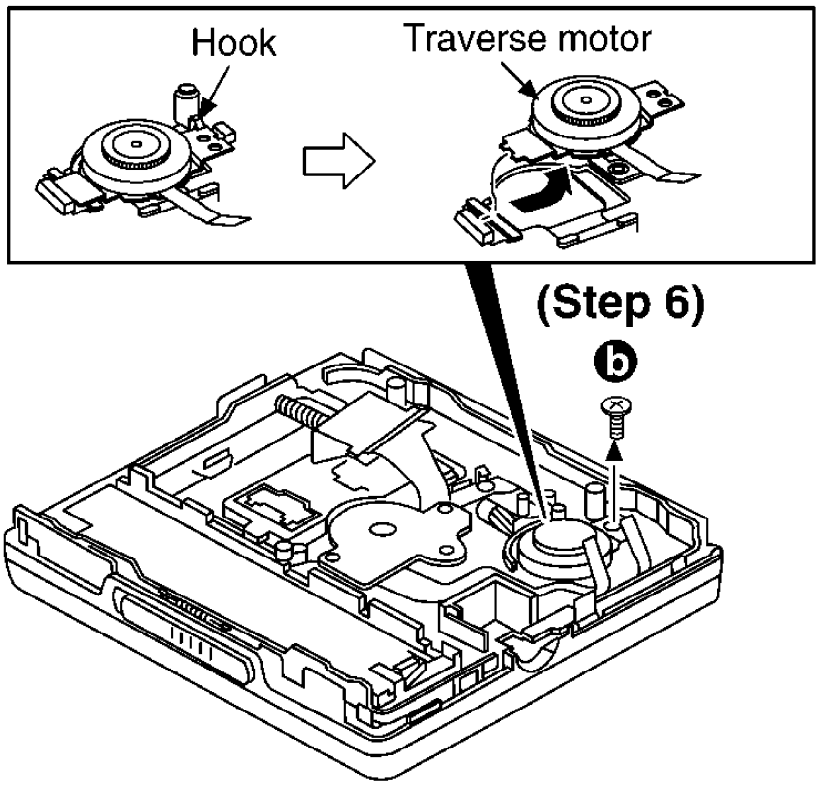
(Step 7)
Release the traverse motor from the hook, and then remove it in the direction of arrow.



5.5. Replacement for the optical pickup

- **Follow the (Step 1) - (Step 3) of item 5.1.1.**
- **Follow the (Step 1) - (Step 5) of item 5.4.**

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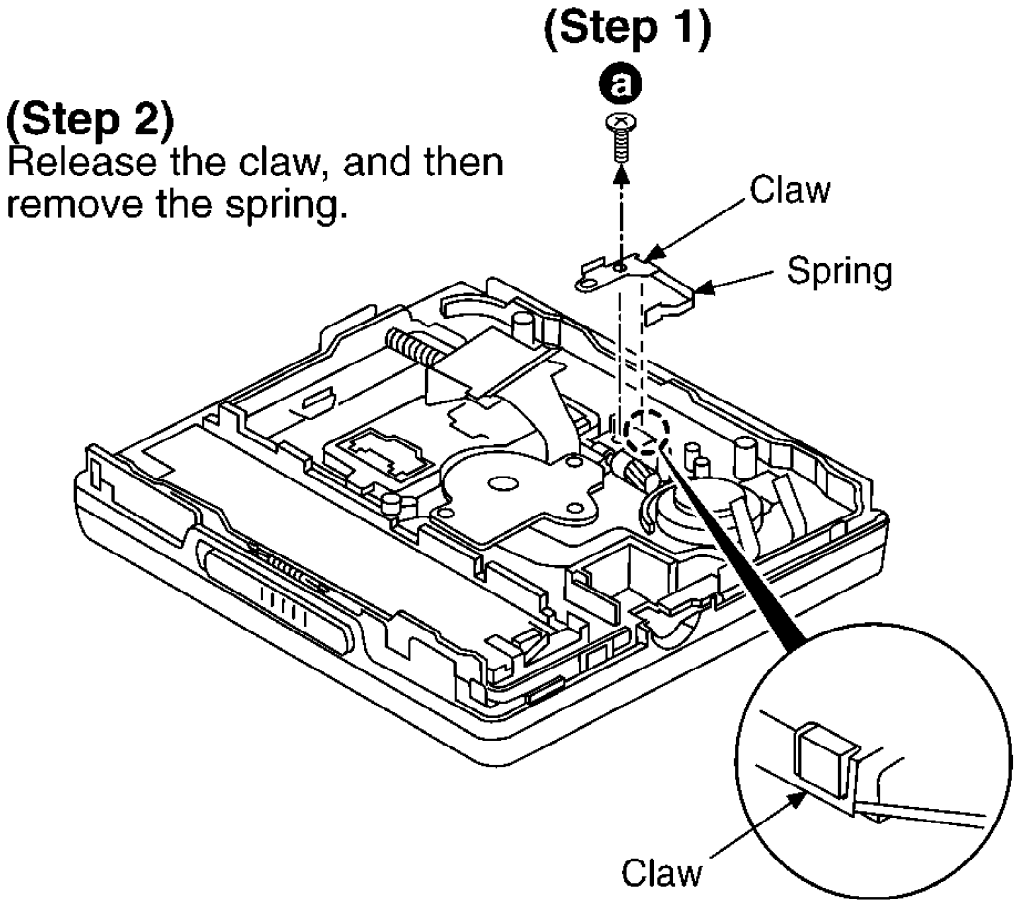

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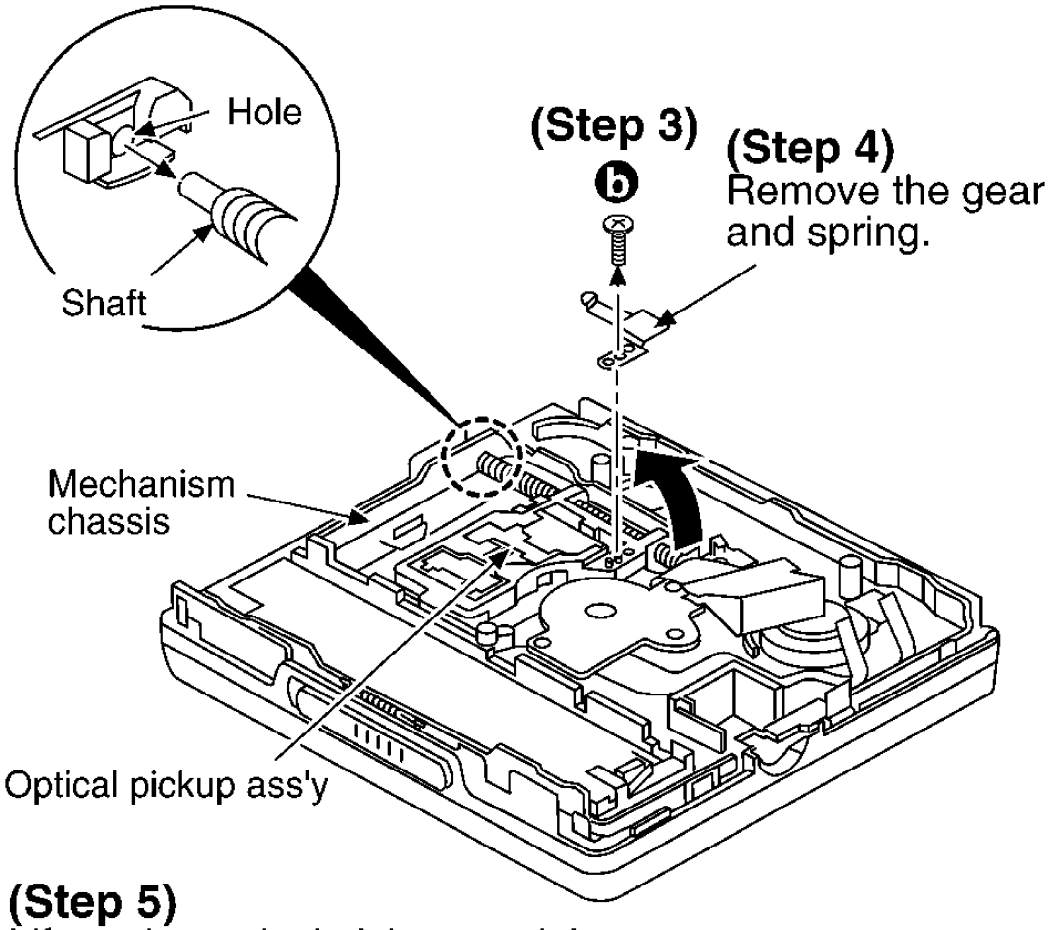

(Step 5)
Lift up the optical pickup, and then remove the shaft from the slot of mechanism.

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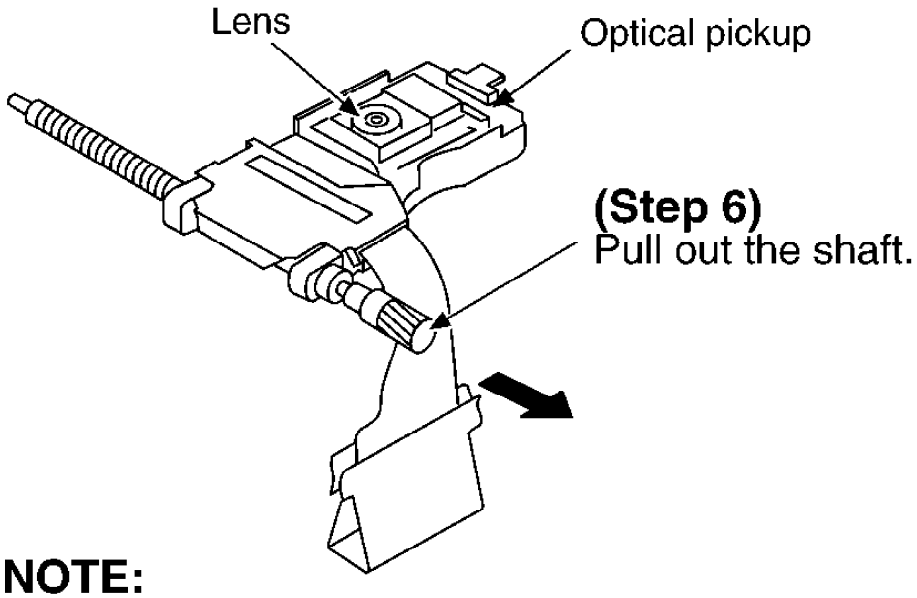

NOTE:

1. Use care to prevent damage the optical pickup, due to the precision construction.
2. Do not touch the lens of the optical pickup.

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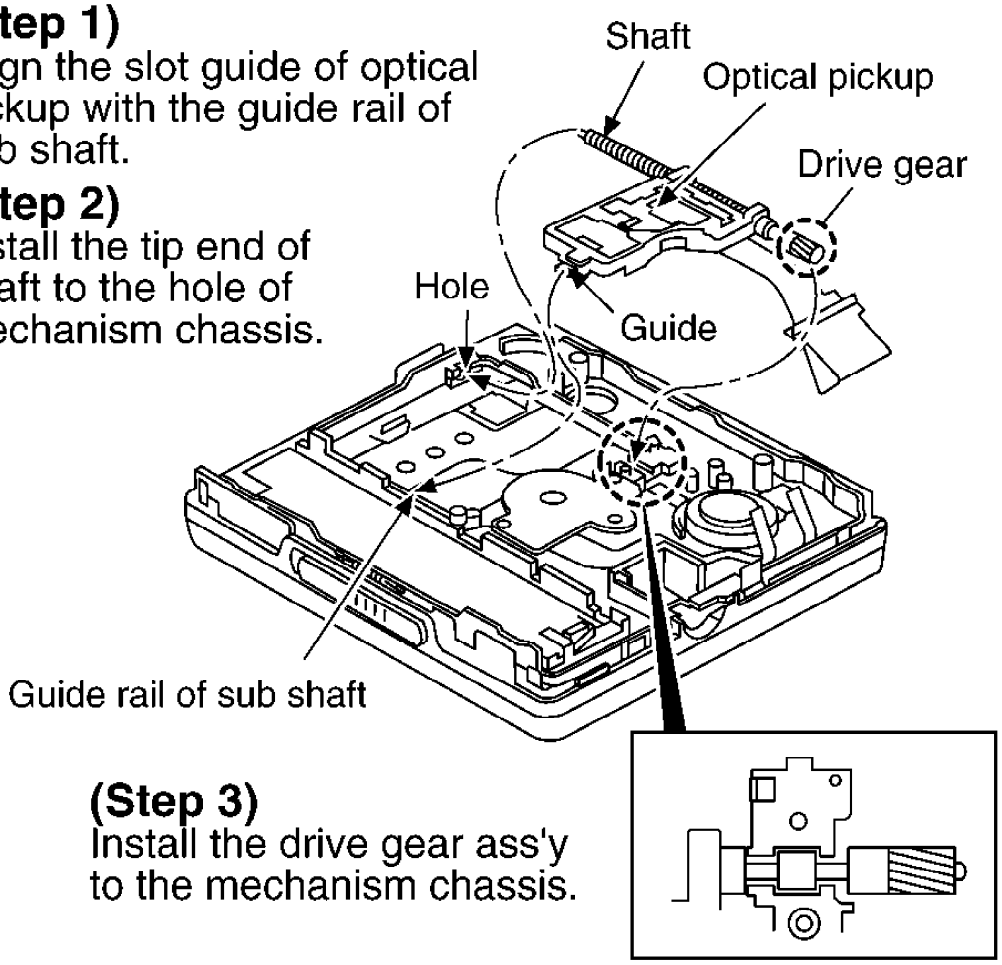
Installing the optical pickup

(Step 1)
Align the slot guide of optical pickup with the guide rail of sub shaft.

(Step 2)
Install the tip end of shaft to the hole of mechanism chassis.



(Step 3)
Install the drive gear ass'y to the mechanism chassis.

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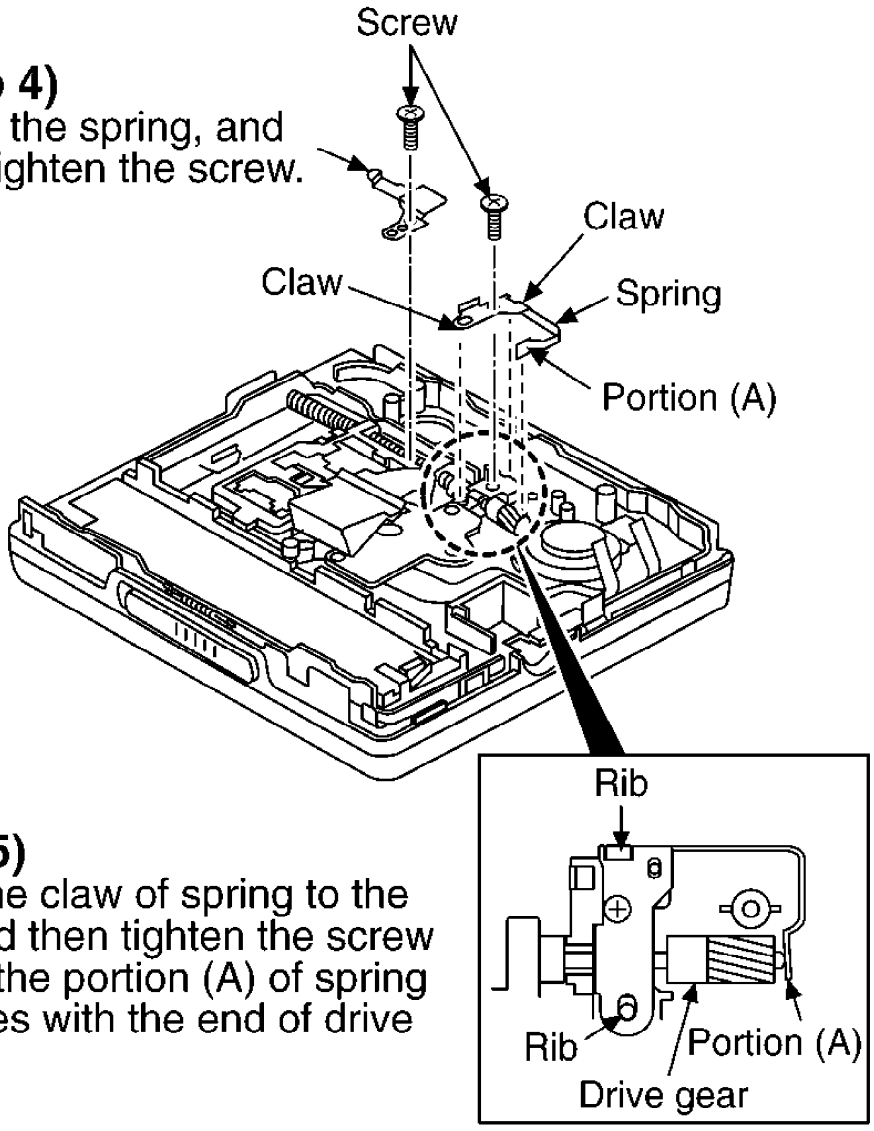

(Step 5)
Latch the claw of spring to the ribs, and then tighten the screw so that the portion (A) of spring interferes with the end of drive gear.

6. Measurements and Adjsutments

Note:
After replacing the main components (optical pickup or traverse motor, etc.) of mechanism unit block, change to the adjust mode, and then perform the "ROM/ RAM auto-adjustment".

6.1. ROM/RAM Disc Automatical Adjustments

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6.1.1. Necessary instruments to adjust

1. Test disc (Playback-only disc)
2. Commercially available recordable disc (fully recorded with music) (magneto-optical disc)
3. Remote controller

6.1.2. Preparations for adjustment

1. Check the laser emission.
   A. Make the player to the mechanism unit only. (Refer to Fig.3 or the item of "Replacement for the intermediate cabinet" in "Operation Checks and Main Component Replacement Procedures).
   B. Set the battery.
   C. While pressing the battery cover to connect the battery power, continuously press the OPEN/CLOSE switch. (As shown in Fig.4)
   D. The optical pickup moves up and down and emits a laser. (Caution: Do not look directly at the laser light source.) If the laser does not emit a beam, follow the item of "operation check" in "Troubleshooting Guide " and check for a malfunction.
   E. Make the optical pickup move to the center of the movement range (refer to Fig.4) (Note : Do not touch the optical pick up lens.).
   F. Remove the battery.

Fig.4

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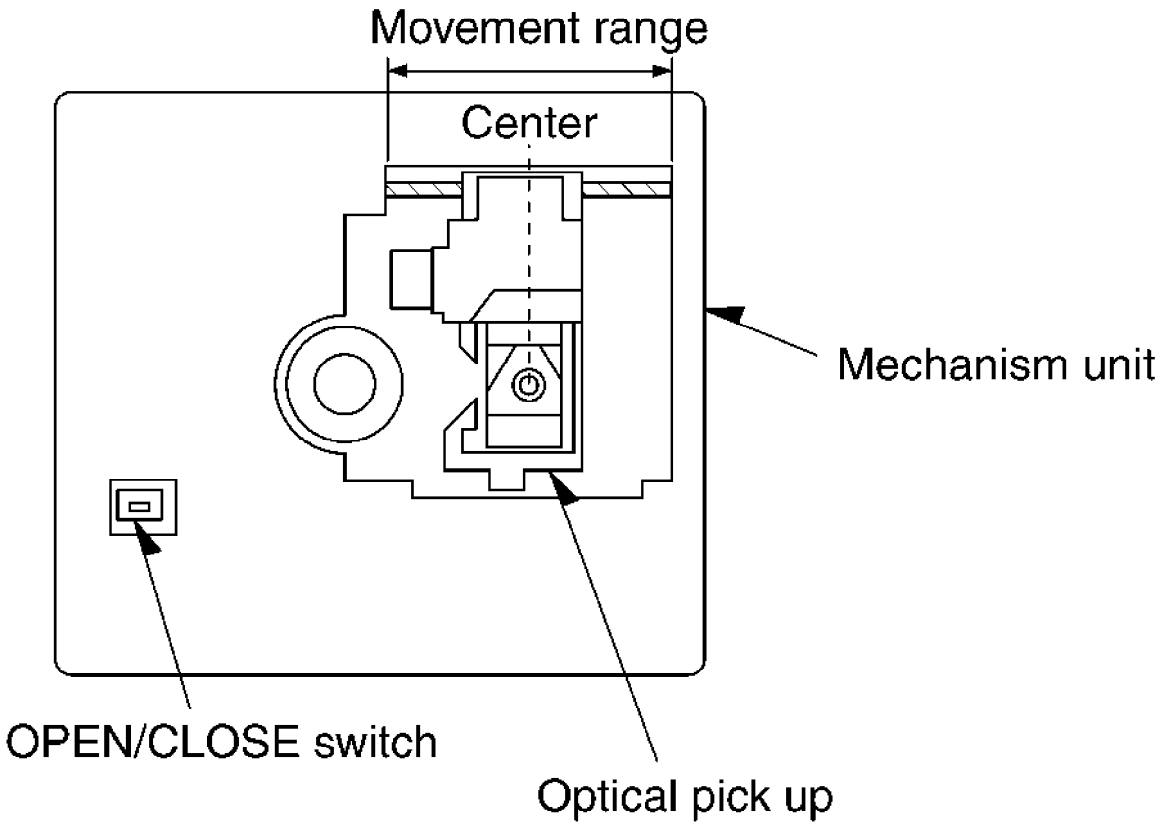

6.1.3. Enter the adjustment mode

1. Mount the mechanism unit on the disc cover. (Shown in the item of "Replacement for the intermediate cabinet" in "Operation Checks and Main Component Replacement Procedures").
2. Connect the remote controller, set the battery and close the battery cover.
3. Turn off the power, select for OFF the main unit's HOLD switch.
4. Press the remote controller's keys in between two seconds, enter the adjustment mode.
   A. Press VOL+ button by your right thumb, and press VOL-button by your left thumb with keeping on pressing VOL+ button.
   B. Release VOL+ button with keeping on pressing VOL-button, and press ▶▶| button by your right thumb.
   C. Release VOL-button with keeping on pressing ▶▶| button, and press |◀◀ button by your left thumb.
   Release ▶▶| button with keeping on |◀◀ button, and release |◀◀ button.
   (a-c are shown in Fig.5)

Fig.5

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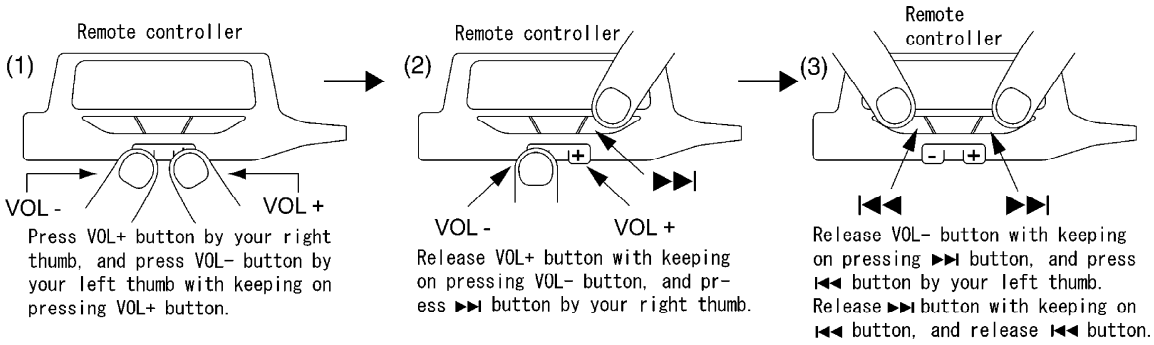

5. When the adjustment mode is activated, “TE” will be displayed. After “TE” is displayed, select the desired adjustment item with the ▶▶| button or |◀◀ button.

Adjustment mode

Adjustment mode	Display
Playback-only disc automatic adjustment	T1
Magneto-optical disc automatic adjustment	T2
Playback-only disc automatic adjustment value check	T3
Magneto-optical disc automatic adjustment value check	T4
Laser power check	T5
EFM jitter measurement	T6
ADIP jitter measurement	T7
Error rate measurement	T8
Tilt measurement	T9
PWB inspection (audio test)	TA
EEPROM check	TE

***In the display of T1 ~ TE shown above, you must adjust T1 and T2.**

6.1.4. Playback-only disc automatic adjustment

With the T1 displayed, set the test disc and press the PLAY key to active the adjustment mode.
During the adjustment, “OADJ” will be displayed. If there are no abnormalities, “OOK” will be displayed. (Note1)
If the ▶ / ■ key is pressed while the “OOK” or “ONG” is being displayed, the setting returns to the T1 display.
When finished, remove the disc.

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Note 1:
When “ONG” is displayed, follow the item of “operation check” in “Troubleshooting Guide” and check for a malfunction.

6.1.5. Magneto-optical disc automatic adjustment

With the T2 displayed, set the commercially available recordable disc (which is fully recorded with music).
Press ▶ / ■ key to activate the adjustment mode.
During the adjsutment, “AADJ” will be displayed. If there are no abnormalities, “AOK” will be displayed. (Note 2)
If ▶ / ■ key is pressed while the “OOK” or “ONG” is being displayed, the setting returns to the T2 display.
When finished, remove the disc.

Note 2:
When “ANG” is displayed, follow the item of “operation check” in “Troubleshooting Guide” and check for a malfunction.

***To exit the adjustment mode, remove the battery.**

6.2. Checking the main unit's keys

1. **Set the battery and connect the remote controller.**
2. **Turn off the power, select for OFF the main unit’s HOLD switch.**
3. **Press the remote controller’s keys in between two seconds, enter the adjustment mode.**
   - **A. Press VOL+ button by your right thumb, and press VOL-button by your left thumb with keeping on pressing VOL+ button.**
   - **B. Release VOL+ button with keeping on pressing VOL-button, and press ▶▶| button by your right thumb.**
   - **C. Release VOL-button with keeping on pressing ▶▶| button, and press |◀◀ button by your left thumb.**
     Release ▶▶| button with keeping on |◀◀ button, and release |◀◀ button.
     (a-c are shown in Fig.6)

Fig.6

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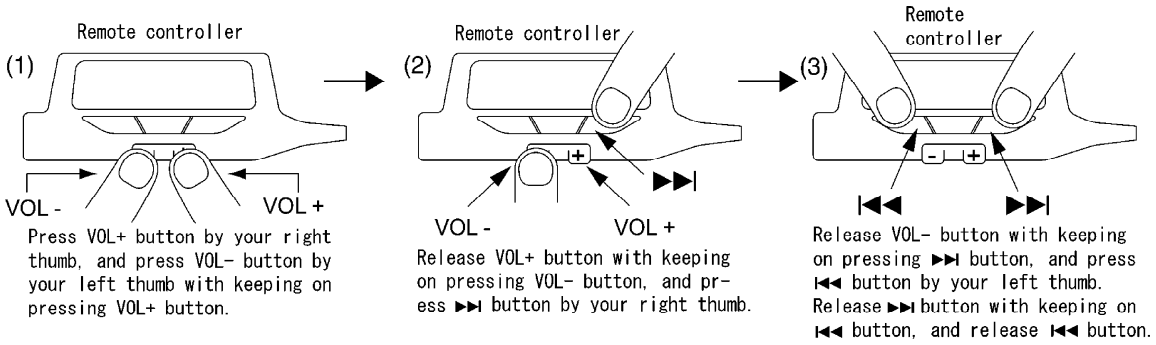

4. When entering the main unit's key check mode, "KEY JP" will be displayed. When "KEY JP" is displayed, press ▶ / ■ , ▶▶| , |◀◀ , VOL (+/-) keys and set the HOLD switch to OFF (no order). Then, "KEY OK" will be displayed.

Note:
If "KEY OK" is not displayed, check the following voltage for each key.

Key	Test point	ON	OFF
▶ / ■	IC201-35 pin	0V	2.3V
HOLD	TPX110	2.3V	0V
VOL +	TP307	0V	2.3V
VOL -	TP307	0.6V	2.3V
▶▶|	TP307	1.2V	2.3V
|◀◀	TP307	1.7V	2.3V

To exit the main unit's key check mode, remove the battery.

Note:
Refer to "Printed Circuit Board and Wiring Connection Diagram" for the test points.

7. Troubleshooting Guide

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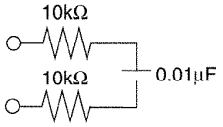
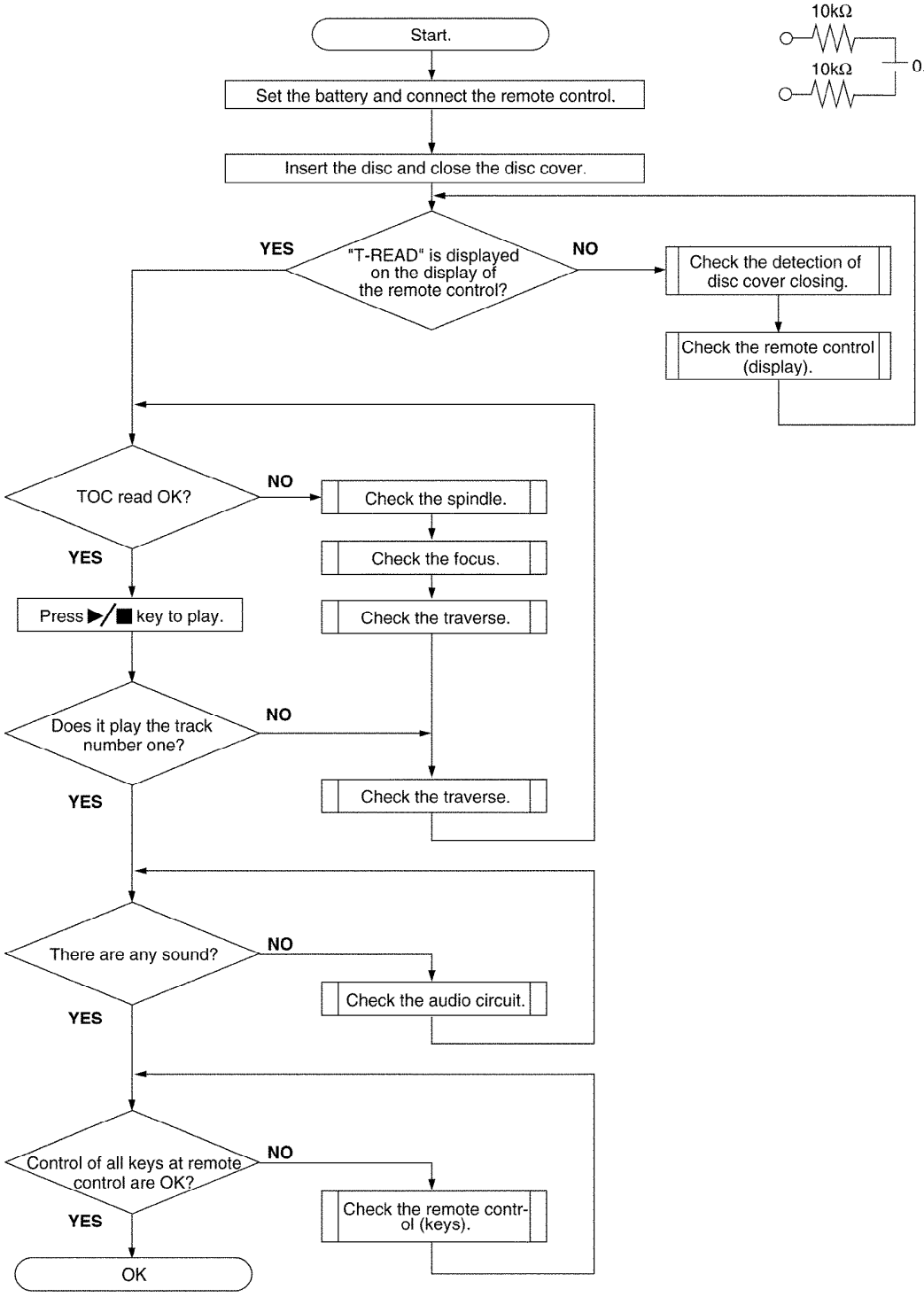
Note) We mentioned " ※Filter" beside the waveform about the points for necessary the filter when you check the waveforms.
Check it with setting the band width of the meter about 5～10kHz, or connecting the filter shown below.





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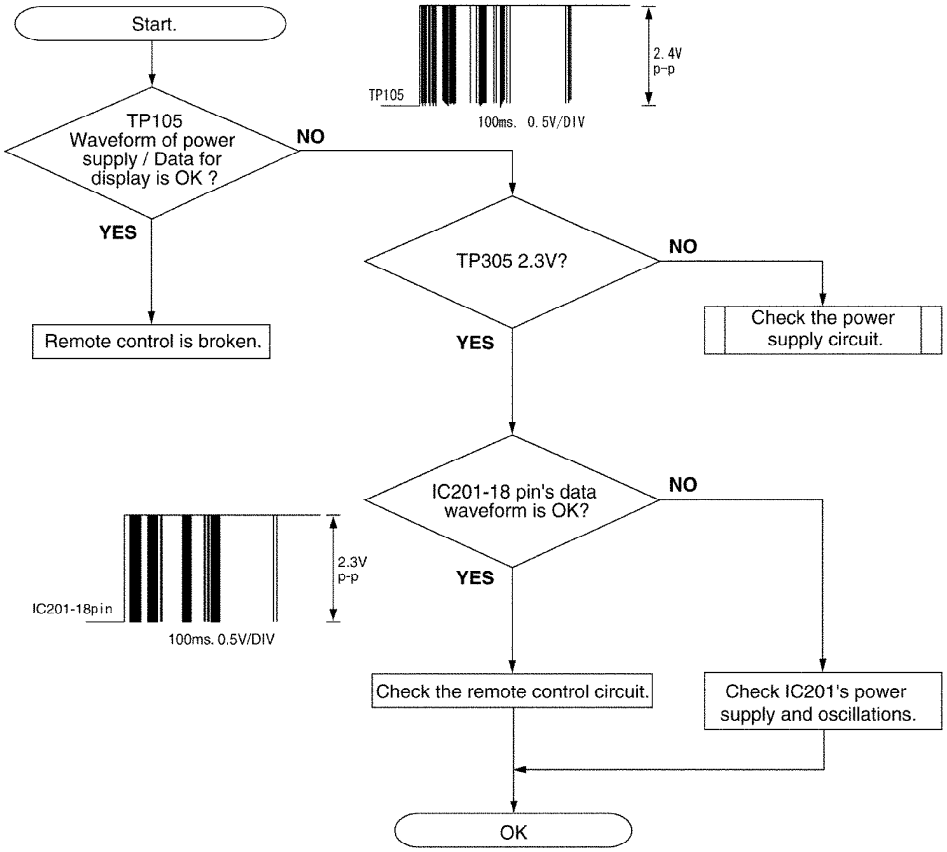
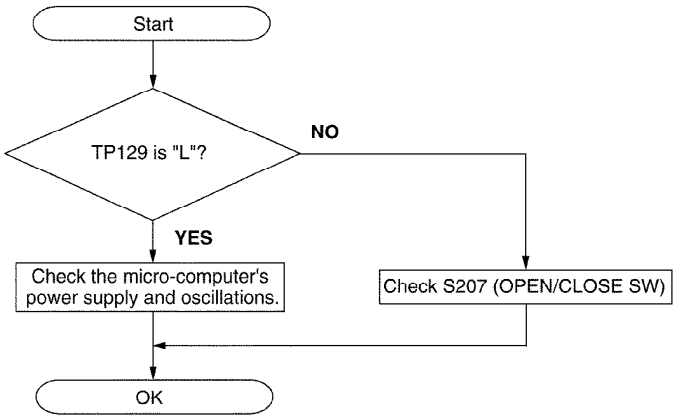
Check the remote control (display).



Check the detection of disc cover closing.



Check the remote control (keys).

○ Check TP106`s waveform and voltage when key is pressed.

MAIN	HOLD	VOLTAGE
PLAY		0.00
VOL+		0.35
VOL−		0.68

MAIN	HOLD	VOLTAGE
DISPLAY		1.49
R-SKIP		1.67

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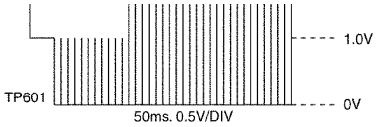

VOL−		0.68
EQ MODE		0.90
PLAY MODE		1.08
F-SKIP		1.28

(KEY-OFF)		1.88
HOLD		2.10
(WITHOUT REMOTE CONT.)		2.30

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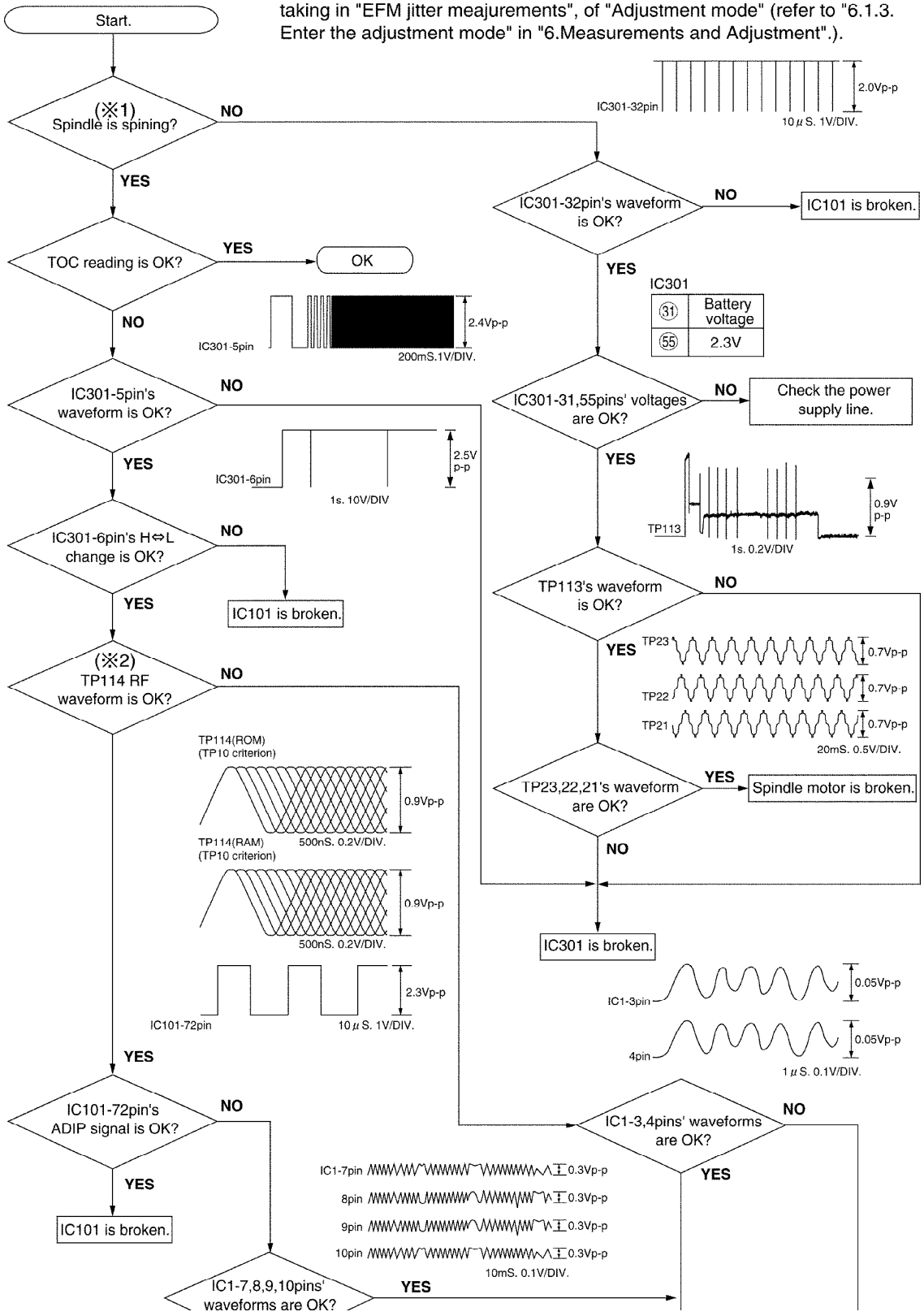
Check the spindle.

(※1) Press S207 (OPEN/CLOSE SW) with removing the disc cover.
(※2) When you confirm RF waveform, you can confirm continuously waveform by taking in "EFM jitter meajurements", of "Adjustment mode" (refer to "6.1.3. Enter the adjustment mode" in "6.Measurements and Adjustment".).



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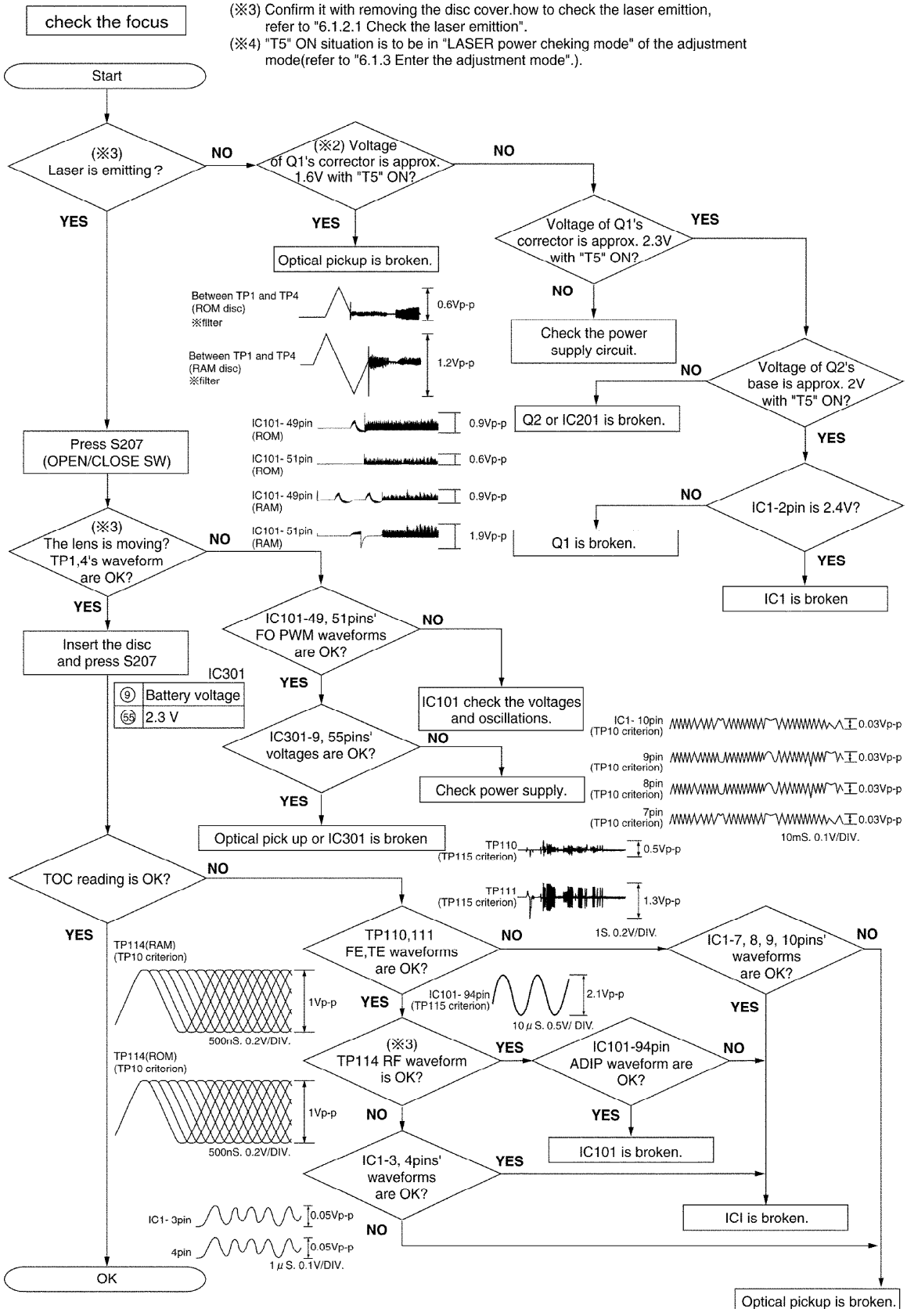

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Optical pickup is broken.

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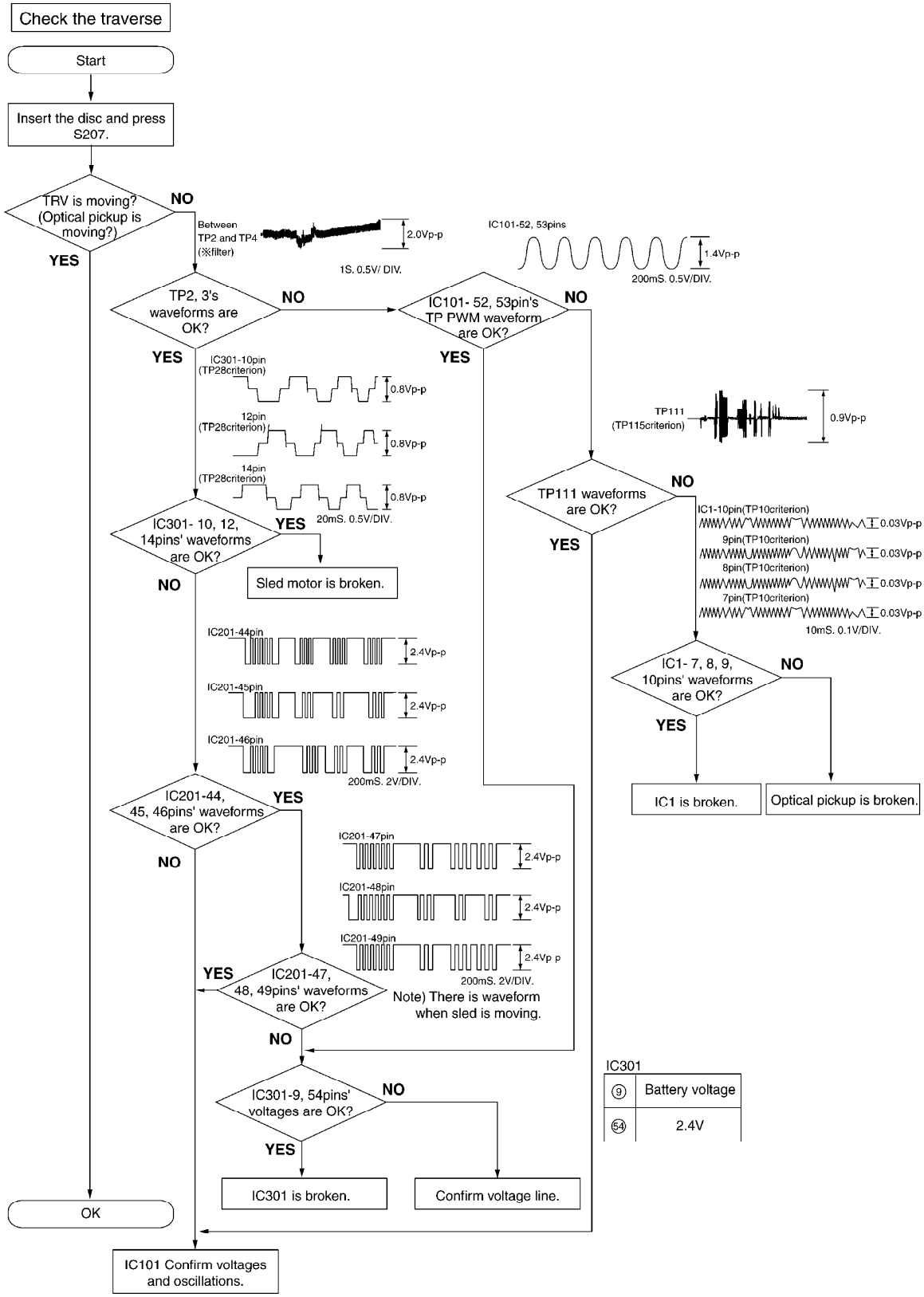

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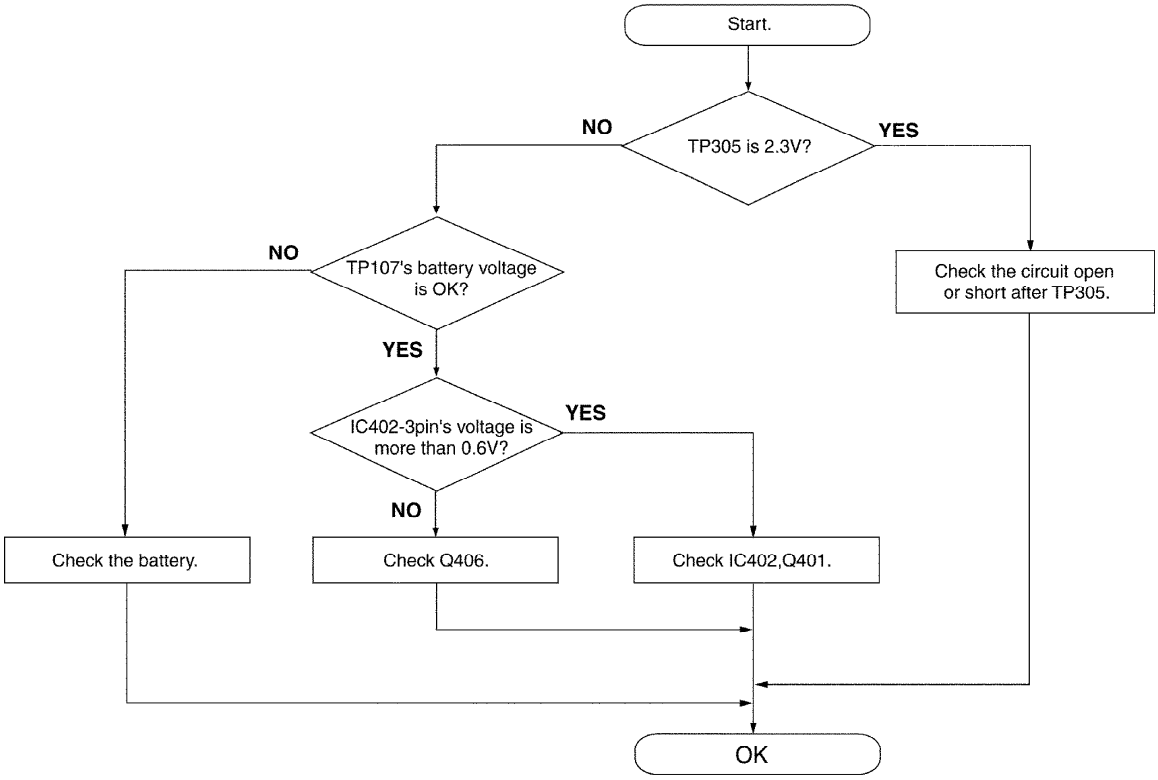
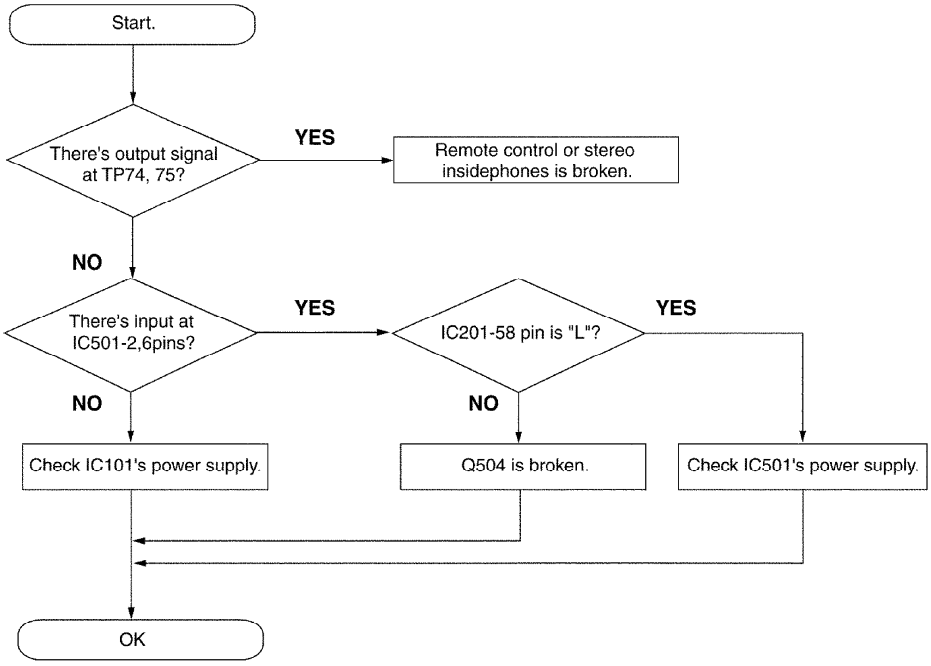
Check the power supply circuit.



Check the audio circuit.



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8. Schematic Diagram Notes

8.1. Schemtic Diagram Notes

This schematic diagram may be modified at any time with the development of new technology.

Notes:

- **S201 : Volume (VOLUME +) switch.**
- **S202 : Volume (VOLUME -) switch.**
- **S203 : F. skip / search (▶▶\|) switch.**
- **S204 : R. skip / search (\|◀◀) switch.**
- **S206 : Play / stop (▶ / ■) switch.**
- **S207 : Cover open / close det. switch.**
- **S208 : Hold switch in "OFF" position.**
- **Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.**

No mark: MD STOP
( ): MD play [1kHz, L+R, 0dB]

Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purpose of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.

Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
Cover the parts boxes made of plastics with aluminum foil.
Ground the soldering iron.
Put a conductive mat on the work table.

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Do not touch the legs of IC or LSI with the fingers directly.

Voltage and signal line

: Positive voltage line

: Playback signal line

8.2. Type Illustration of IC's, Transistors and Diodes

9. Schematic Diagram

10. Printed Circuit Board and Wiring Connection Diagram

11. Block Diagram

12. Terminal Function of IC 's

12.1. IC1 (LA9607T-TFM) : RF AMP

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Pin No.	Mark	I/O Division	Function
1	PPIT	—	Pit/Group discrimination input terminal (“H”:pit, “L”: group) (Not used, open)
2	VCC	I	Power supply input terminal
3	J	I	RF signal that I-V converted input terminal
4	I		
5	F	I	Side beam signal that I-V converted input terminal
6	E		
7	D	I	Main beam signal that I-V converted input termianl
8	C		
9	B		
10	A		
11	VEE	—	GND terminal
12	LDO	O	APC output terminal
13	LDS	I	Laser light quantity that I-V converted input terminal
14	LDREF	I	Laser control signal input terminal
15	FBAL	I	Focus balance control signal input terminal
16	TBAL	I	Tracking balance control signal input terminal
17	TOFFSET	I	Tracking offset control signal input terminal
18	FOFFSET	I	Tracking offset control signal input terminal
19	AOFFSET	I	ABCD offset control signal input terminal
20	SGC	I	AGC control signal input terminal
21	DSW0	I	Disc mode setting input terminal (“H”:low reflection rate disc, “L”:high reflection rate disc, both DSW0 and DSW1 are “L”: laser off)
22	DSW1	I	Disc mode setting input terminal (“H”:track is pit-row, “L”:track is group, both DSWO and DSW1 are “L”:laser off)

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Pin No.	Mark	I/O Division	Function
23	VR	I	For pass-com 1/2 VCC (reference voltage) input terminal
24	VC	O	1/2 VCC (reference voltage) output terminal
25	FE	O	Focus error signal output terminal
26	TE	O	Tracking error signal output terminal
27	ABCD	O	Main beam light quantity signal output terminal
28	HFLI	I	For making HFL signal input terminal (when group mode)
29	BOTTOM	O	Bottom signal of RF signal output terminal
30	PEAK	O	Peak signal of RF signal output terminal
31	HFL	O	Track detection signal input terminal
32	BHC	—	Connected to GND through capacitor
33	PHC		
34	RFVEE	—	GND terminal
35	EQ0	O	RF equalizer output terminal
36	EQI	I	RF equalizer input terminal
37	RFO	O	RF signal output terminal
38	RFVCC	I	Power supply input terminal
39	ADIPCR	O	ADIP carrier signal output terminal
40	3TSW	I	3T/11T monitor terminal select switch input terminal
41	GLHSW	—	GND terminal
42	RAGCSW	I	RF AGC ON/OFF select switch input terminal
43	WDO	O	Wobble signal output terminal
44	WOI	I	Wobble signal input terminal
45	SETR	I	Band pass filter set ting input terminal

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Pin No.	Mark	I/O Division	Function
46	CAD	I	Capaciter for DC cut of Wobble signal connect terminal
47	BWCT	I	Band pass filter select terminal for wobble signal
48	SLEEP	I	Sleep mode terminal (“H”: power supply ON, “L”: power supply OFF) (Connected to power supply through capacitor)

12.2. IC101 (LC89642-8A) : MSP

Pin No.	Mark	I/O Division	Function
1	FR	I	Bias resistor terminal of VCEC oscillation frequency (Connected to power supply through resistor)
2	ISET	I	Bias resistor terminal of VCEC voltage charge pump (Connected to power supply through resistor)
3	VCVDD	I	Power supply terminal for VCEC
4	PDO	O	VCEC voltage charge pump output terminal (Connected to GND through resistor and capacitor)
5	TEST3	I	Intput terminal for test (Connected to power supply)
6	TEST2	I	Input terminal for test (Connected to power supply)
7	SLCO	O	Slice level of HF signal output terminal
8	SLCIST	I	Slice level adjustment amp. bias resistor terminal
9	EFMIN	I	RF equalizer input terminal
10	RESETB	I	System reset B signal input terminal

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Pin No.	Mark	I/O Division	Function
11	TEST1	I	Input terminal for test (Connected to power supply)
12	HFL	I	Track detection signal input terminal
13	VDD2	I	Power supply terminal
14	VSS	—	GND terminal
15	VDD1	I	Power supply terminal
16	AVSS1	—	GND terminal
17	PEAK	I	Peak signal of RF input terminal
18	BOTTOM	I	Bottom signal of RF input terminal
19	ABCD	I	Main beam light quantity signal input terminal
20	TE	I	Tracking error signal input terminal
21	FE	I	Focus error signal input terminal
22	VC	I	1/2 VCC (reference voltage input terminal)
23	AVDD1	I	Power supply terminal
24	MAD9	O	Adress output terminal to DRAM (Not used, open)
25	DSW1	O	Disc mode setting output terminal (“H”:track is pit-low, “L”:high reflection rate disc)
26	MAD8	O	Adress output terminal to DRAM (Not used, open)
27	DSW0	O	Disc mode setting output terminal (“H”:low reflection rate disc, “L”:high reflection rate disc)
28	MAD7	O	Adress output terminal to DRAM (Not used, open)
29	SGC	O	AGC control signal output terminal

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Pin No.	Mark	I/O Division	Function
30	MAD6	O	Adress output terminal to DRAM (Not used, open)
31	AOFF SET	O	ABCD offset control signal output terminal
32	MAD5	O	Adress output terminal to DRAM (Not used, open)
33	FOFF SET	O	Focus offset control signal output terminal
34	TOFF SET	O	Tracking offset control signal output terminal
35	MAD4	O	Adress output terminal to DRAM (Not used, open)
36	TBAL	O	Tracking balance control signal output terminal
37	LDREF	O	Laser control signal output terminal
38	FBAL	O	Focus balance control signal output terminal
39	VDD1	I	Power supply terminal
40	VSS	—	GND terminal
41	VDD2	I	Power supply terminal
42	MAD3	O	Adress output terminal to DRAM (Not used, open)
43	SPP WMF	O	Spindle PWM output terminal
44	SPP WMR		
45	SLP WMF	O	Sled PWM output terminal
46	MAD2	O	Adress output terminal to DRAM (Not used, open)
47	SLP WMR	O	Sled PWM output terminal
48	MAD1	O	Adress output terminal to DRAM (Not used, open)
49	FOP WMF	O	Focus PWM output terminal

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Pin No.	Mark	I/O Division	Function
50	MAD0	O	Adress output terminal to DRAM (Not used, open)
51	FOP WMR	O	Focus PWM output terminal
52	TRP WMF	O	Tracking PWM output terminal
53	TRP WMR		
54	TESTI0	—	Input terminal for test (Not used, open)
55	AVDD	I	Power supply terminal
56	OUTL	O	1 bit DAC L channel output terminal
57	OUTR	O	1 bit DAC R channel output terminal
58	AVSS	—	GND terminal
59	VDD2	I	Power supply terminal
60	X IN	I	Crystal oscillator input teminal (f=16.9344MHz)
61	X OUT	O	Crystal oscillator output teminal (f=16.9344MHz)
62	VSS	—	GND terminal
63	VDD1	I	Powe supply terminal
64	F16M	O	16.9344MHz output terminal (Not used, open)
65	ENH	O	De-emphasis output terminal (Not used, open)
66	LRCO	O	LR clock output terminal (Not used, open)
67	DDATA	O	Not used, open
68	BCO	O	Bit clock output terminal (Not used, open)
69	DDOUT	O	Digital audio output terminal (Not used, open)
70	SMON3	O	Monitor signal output terminal (Not used, open)
71	SMON2	O	Monitor signal 2 output terminal
72	SMON1	O	Monitor signal 1 output terminal

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Pin No.	Mark	I/O Division	Function
73	SMON0	O	Monitor signal 0 output terminal (Not used, open)
74	FSEQ	O	Flame detection signal output terminal (Not used, open)
75	VP	O	CLV servo clock judgement signal output terminal (Not used, open)
76	MCST	—	Not used, open
77	MRASB	O	RAS signal to DRAM output terminal (Not used, open)
78	FOK	O	Focus OK signal output terminal
79	MWEB	—	Not used, open
80	DEFECT	O	Defect signal output terminal (Not used, open)
81	MD1	I/O	Data in/output terminal to DRAM (Not used, open)
82	FG	I	Speed pulse input terminal
83	CL	I	CPU interface data clock input terminal
84	CE	I	CPU interface chip enable signal input terminal
85	MD0	I/O	Data in/output terminal to DRAM (Not used, open)
86	DI	I	CPU interface data clock input terminal
87	VDD1	I	Power supply terminal
88	DO	O	CPU interface data output terminal
89	VDD2	I	Power supply terminal
90	VSS	—	GND terminal
91	MD3	I/O	Data in/output terminal to DRAM
92	WRQB	O	CPU interface interrupt signal output terminal
93	INTB	O	CPU interface interrupt signal output terminal

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Pin No.	Mark	I/O Division	Function
94	ADIPWO	I	Wobble signal input terminal
95	MD2	I/O	Data in/output terminal to DRAM
96	SHOCK	O	Shock detection signal output terminal
97	MCASB	O	CAS signal to DRAM output terminal (Not used, open)
98	PCK	O	VCEC clock signal output terminal (Not used, open)
99	MOEB	O	OE signal to DRAM output terminal (Not used, open)
100	VCVSS	—	GND terminal

12.3. IC201 (MN101C28DAD1) : SYSTEM CONTROL

Pin No.	Mark	I/O Division	Function
1	VREF-	—	Reference voltage- input terminal (Connected to GND)
2	AN0	—	Not used, connected to GND through resistor
3	BATT	I	Battery voltage detect terminal
4	KEY IN	I	Key input terminal
5	AN3	I	Area select termianl (Connected to power supply through resistor)
6	REM KEY	I	Remocon key input terminal
7	DOCTOR	I	Check mode input terminal (“L”:check mode)(Connected to power supply through resistor)
8	AN6	—	Not used, connected to GND
9	SE	I	Sled error voltage input terminal

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Pin No.	Mark	I/O Division	Function
10	VREF+	I	Reference voltage+ input terminal
11	VDD	I	Power supply terminal
12	OSC2	I	System clock input terminal (6MHz)
13	OSC1	O	System clock output terminal (6MHz)
14	VSS	—	GND terminal
15	XI	I	Sub clock input terminal (Not used, connected to GND)
16	XO	O	Sub clock output terminal (Not used, open)
17	MMOD	—	Memory mode select terminal (Connected to GND)
18	REM DATA	O	LCD driver data output terminal
19	LINK IN	I	Link serial communication clock signal input terminal
20	—	—	Not used, open
21	SSDW	O	CPU interface data output terminal
22	SSDR	I	CPU interface data input terminal
23	SSCLK	O	CPU interface data clock output terminal
24	BUZZER	O	Buzzer control output terminal
25	RST	I	Reset signal input terminal
26	SELAD	O	CPU interface chip enable output terminal
27	—	—	Not used, open
28	SE TR	O	Band pass filter set terminal
29	—	—	Not used, open
30	BWCT	O	Band pass filter select output terminal
31	INTB	I	CPU interface interrupt input terminal
32	WRQB		
33	REM WUP	I	Remocon wake up interrupt input terminal

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Pin No.	Mark	I/O Division	Function
34	OPEN SW	I	Cover open/close detect terminal (“H”:open)
35	PLAY KEY	I	Play key input terminal (“L” :STOP/PLAY)
36	AGC TC	O	RF AGC select output terminal (Not used, open)
37	PC	O	Driver IC stand by output terminal
38	ZDTCL	I	Lch no signal detect input terminal (“H”:no signal)
39	FOK	I	Focus OK signal input terminal
40	ZDTCR	I	Rch no signal detect input terminal (“H”:no signal)
41	RESETB	O	System reset output terminal
42	—	—	Not used, open
43			
44	UO	O	Stepping motor control output terminal
45	VO		
46	WO		
47	UI	I	Stepping motor control input terminal
48	VI		
49	WI		
50	LDON	O	Laser on output terminal (“L”:laser ON)
51	—	—	Not used, open
52	EEPDATA0	O	EEP ROM data output terminal
53	EEPCK	O	EEP ROM clock output terminal
54	EEPCS	O	EEP ROM chip select output terminal
55	EEPDATAI	I	EEP ROM data input terminal
56	—	—	Not used, open
57	HOLD	I	Hold switch input terminal (“L”:Hold switch off)
58	MUTEA	O	Analog mute A output terminal
59	MUTEB	O	Analog mute B output terminal
60	—	—	Not used, open

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Pin No.	Mark	I/O Division	Function
61	STBY2	O	4ch driver IC stand by 2 output terminal
62	RFCONT	O	RF amp power control output terminal
63	SEDIR	I	Sled error direction input terminal
64	TBALOK	O	Tracking balance adjustment output terminal (“H”:adjustment)(Not used, open)
65~68	—	—	Not used, open
69	3TSW	O	3T/11T monitor select switch output terminal
70	RAGCSW	O	RF AGC ON/OFF select switch output terminal
71	SHOCK	I	Shock det. input terminal
72~78	—	—	Not used, open
79	ELON	O	EL display control output terminal (“L”:EL on)
80	P.CONT	O	Power control output terminal

12.4. IC301 (BD6605KVT) : FOCUS/TRACKING COIL, TRAVERSE MOTOR DRIVE, SPINDLE MOTOR DRIVE, ROTARY DETECTOR

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Pin No.	Mark	I/O Division	Function
1	SPWIN	I	Roter position detect comparater(W) input terminal
2	SPCOM	I	Spindle motor coil center input terminal
3	EXTCLK	I	Not used, open
4	C1P	—	Charge pump capacitor 1(+) connect terminal
5	C1M	—	Charge pump capacitor 1(-) connect terminal
6	C2P	—	Charge pump capacitor 2(+) connect terminal
7	C2M	—	Charge pump capacitor 2(-) connect terminal
8	VG	O	Charge pump output terminal
9	SLVM1	I	Power supply terminal
10	SLUOUT	O	Stepping motor (U) output terminal
11	SLPG1	—	GND terminal
12	SLVOUT	O	Stepping motor (V) output terminal
13	SLVM2	I	Power supply terminal
14	SLWOUT	O	Stepping motor (W) output terminal
15	SLPG2	—	GND terminal
16	SLCOM	I	Step motor coil center input terminal
17	BEMFW	O	Step detect comparater(W) output terminal
18	BEMFV	O	Step detect comparater(V) output terminal
19	BEMFU	O	Step detect comparater(U) output terminal
20	S3	I	Stepping decorder 3 input terminal
21	S2	I	Stepping decorder 2 input terminal
22	S1	I	Stepping decorder 1 input terminal
23	SGND	—	GND terminal
24	ASGND	—	GND terminal

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Pin No.	Mark	I/O Division	Function
25	STHB	I	H1, H2 bridge mute input terminal
26	STALL	I	Standby input terminal
27	PW1VM	I	Power supply terminal
28	PW1OUT	O	Half bridge 1 output terminal (Not used, open)
29	PWPG	—	GND terminal
30	PW2OUT	O	Half bridge 2 output terminal
31	PW2VM	I	Power supply terminal
32	PWIN2	I	Half bridge input terminal
33	PWIN1	—	GND terminal
34	IN 2R	I	H bridge 2 reverse input terminal
35	IN 2F	I	H bridge 2 forward input terminal
36	IN 1R	I	H bridge 1 reverse input terminal
37	IN 1F	I	H bridge 1 forward input terminal
38	H2 PG2	—	GND terminal
39	H2 R OUT	O	H bridge 2 reverse output terminal
40	H2 VM	I	Power supply terminal
41	H2 F OUT	O	H bridge 2 forward output terminal
42	H2PG1	—	GND terminal
43	H1 PG2	—	GND terminal
44	H1 R OUT	O	H bridge 1 reverse output terminal
45	H1 VM	I	Power supply terminal
46	H1 F OUT	O	H bridge 1 forward output terminal
47	H1 PG1	—	GND terminal
48	CST	—	Connected to GND through capaciter
49	CSL1	I	Slope capacitor connection terminal (Connected to GND through capacitor)
50	CSL2		
51	FG	O	Speed pulse output terminal

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Pin No.	Mark	I/O Division	Function
52	BRK-	I	Brake comparater- input terminal
53	BRK+	I	Brake comparater+ input terminal
54	VCC2	I	Power supply terminal
55	VCC1	I	Power supply terminal
56	SP VM1	I	Half bridge 1 input terminal
57	SP U OUT	O	Spindle motor coil(U) output terminal
58	SP PG1	—	GND terminal
59	SP V OUT	O	Spindle motor coil(V) output terminal
60	SP VM2	I	Half bridge 2 input terminal
61	SP W OUT	O	Spindle motor coil(W) output terminal
62	SP PG2	—	GND terminal
63	SP U IN	I	Roter position detect comparater(U) input terminal
64	SP V IN	I	Roter position detect comparater(V) input terminal

13. Supply of Rechargeable Battery Ass'y as Replacement Parts

Please take note of the following points relating to Battery Carrying Case to be used for protection of Rechargeable Battery Ass'y from shorting. Replacement Parts:

- **Rechargeable Battery Ass'y (For EB, EG areas: RFKFBP140HSY) (For GH area: RP-BP61GY-S) supplied will be provided with Battery Carrying Case (RFA0475 -Q).**
- **No replacement parts will be supplied for Rechargeable Battry Ass'y without Battery Carrying Case.**
- **Replacement parts will be supplied for Battery Carrying Case (RFA0475-Q) without Rechargeable Battery Ass'y.**
- **To your customers, delivery Rechargeable Battery Ass'y together with Battery Carrying Case to prevent shorting accidents that may occur when**

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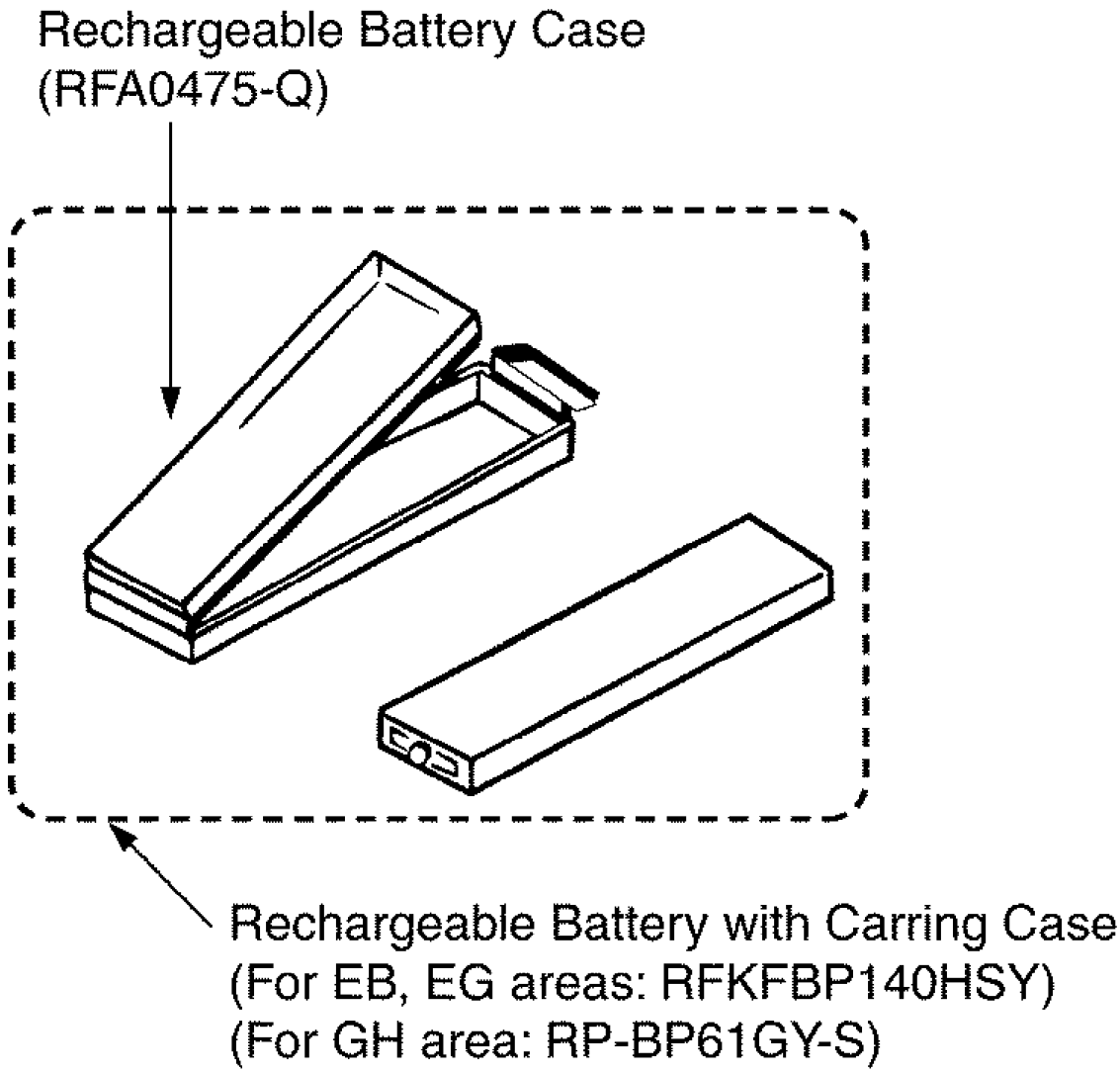
Rechargeable Battery Ass'y is carried about Battery Carrying Case. (as shown in Fig.6)

Fig.7



14. Caution in Use of Rechargeable Battery Ass'y

- **Take Rechargeable Battery Ass'y out of Battery Carrying Case and use it.**
- **Be sure to carry Rechargeable Battery Carrying Case. If not, it may either heat or ignite by shorting with a metal. (as shown in Fig.8)**

Fig.8

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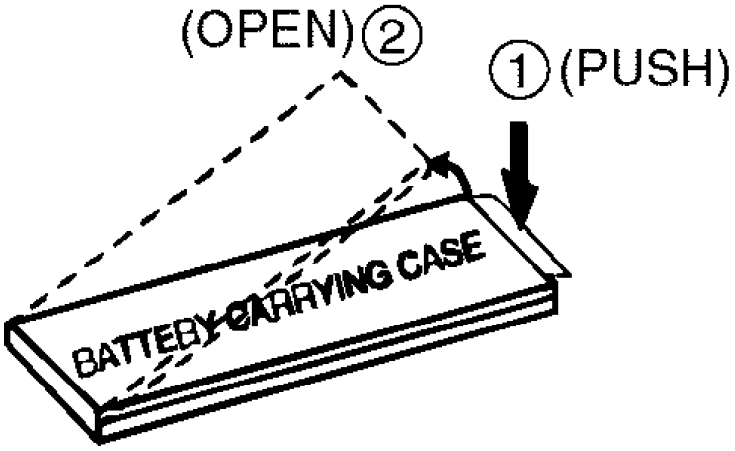

15. Replacement Parts List

15.1. Replacement Parts List

Notes:
***Important safety notice:**
Components identified by ⚠ mark have special characteristics important for safety.
Funrthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
***Warning: This product uses a laser diode. Refer to caution statements.**
***ACHTUNG:Die lasereinheit nicht zerlegen.Die lasereinheit darf nur gegen einc vom hersteller spezifizierte einheit ausgetauscht werden.**
***Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)**
***Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M =1,000K (OHM)**
***The marking <RTL> indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly , and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.**
***"<IA>" mark in Remarks indicate languages of instruction manual.**
[<IA> : English/ Spanish/ French/ German/ Netherlands/ Swedish/ Italian/ Russian / Polish/ Danish/ Czeco, <IB> : English/ Chinese]

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Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RHQ0083-S	SCREW	4	
2	RXQ0658-3	LINK UNIT(L)	1	
3	RXQ0659-1	LINK UNIT(R)	1	
4	RXQ0660	HOLDER ASS'Y	1	
5	RYF0531Z-S	DISC COVER ASS'Y	1	
6	RYQ0273-S	INTERMEDIATE CABINET	1	
6-1	RGV0255-S	OPEN KNOB	1	
7	RYK0977A-S	CABINET ASS'Y	1	(EB)(EG)
7	RYK0977B-S	CABINET ASS'Y	1	(GH)
7-1	RGK1210-S	JACK PIECE	1	
7-2	RGU1817-S	BUTTON,OPERATION	1	
7-3	RGU1818-S	BUTTON,VOLUME	1	
7-4	RGV0256-S	HOLD KNOB	1	
8	RHD14076-S	SCREW	6	
9	RKK0133-S	BATTERY COVER	1	
10	RAE1611Z	MECHANISM UNIT	1	⚠
10-1	RDG0446	INTERMEDIATE GEAR	1	
10-2	RHD14067	SCREW	1	
10-3	RHW11011	WASHER	1	
10-4	RMC0392-1	SPRING	1	
10-5	RXJ0025	SHAFT	1	
10-6	RXK0293	TRAVERSE UNIT	1	
10-6A	BQL1A1CWD2	TRAVERSE MOTOR	1	
10-6B	RHD14074	SCREW	1	
10-6C	RJC99038	R.BATT.TERMINAL(-)	1	
10-6D	RMX0156	STOPPER RUBBER	1	
10-6E	XQN14+B2FC	SCREW	1	
10-7	RAF1620A	OPTICAL PICKUP	1	⚠
10-8	RHD14005	SCREW	1	
10-9	RMC0371-1	SPRING	1	
11	RHD14067	SCREW	5	
12	RJC99039	R.BATT.TERMINAL(+)	1	
13	RJR0195	BATTERY SHAFT	1	
A1	RFKFBP140HSY	RECHARGEABLE BATT.ASS'Y	1	(EB)(EG)
A1	RP-BP61GY-S	RECHARGEABLE BATT.ASS'Y	1	(GH)
A1-1	RFA0475-Q	RECHARGEABLE BATT.CASE	1	
A2	RFA1136-H	BATTERY CASE	1	
A3	RFC0056-K	CARRING CASE	1	
A4	RFEV025P-SM	REMOTE CONTROL	1	
A5	RFEV319P-S1A	STEREO INSIDEPHONES	1	
A6	RP-BC155AEBY	CHARGER	1	(EB) ⚠
A6	RP-BC155AEYB	CHARGER	1	(EG) ⚠
A6	RP-BC155AGH	CHARGER	1	(GH) ⚠
A7	RQA0117	WARRANTY CARD	1	(EB)(EG)
A8	RQCB0169	SERVICENTER LIST	1	
A9	RQT5331-B	INSTRUCTION MANUAL	1	(EB)(EG)<IA>
A9	RQT5332-G	INSTRUCTION MANUAL	1	(GH)<IB>
C1	ECUVNJ105KBV	63V 1U	1	

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Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C2	ECUE1C103KBQ	16V 0.01U	1	
C4	ECUE1H120JCQ	50V 12P	1	
C5	ECUVNJ105KBV	63V 1U	1	
C6	ECUVNA224KBV	10V 0.22U	1	
C7	ECUE1H040CCQ	50V 4P	1	
C8	ECUVNJ105KBV	63V 1U	1	
C10	ECUENA104KBQ	10V 0.1U	1	
C11	RCST0GZ226RG	4V 22U	1	
C12	ECUENA104KBQ	10V 0.1U	1	
C13	RCST0GZ106RG	4V 10U	1	
C14	ECUENA104KBQ	10V 0.1U	1	
C17,18	ECUV1C823KBV	16V 0.082U	2	
C19	ECUENA104KBQ	10V 0.1U	1	
C20	ECUE1H332KBQ	50V 3300P	1	
C21	ECUE1C103KBQ	16V 0.01U	1	
C23	ECUE1H332KBQ	50V 3300P	1	
C24	ECUENA104KBQ	10V 0.1U	1	
C25	RCST0GZ106RG	4V 10U	1	
C27-29	ECUE1H102KBQ	50V 1000P	3	
C101	RCST0EX227RE	2.5V 220U	1	
C102	ECUENA104KBQ	10V 0.1U	1	
C103	ECUENA473KBQ	10V 0.047U	1	
C110,11	ECUENA104KBQ	10V 0.1U	2	
C113,14	ECUENA104KBQ	10V 0.1U	2	
C115	ECUE1C103KBQ	16V 0.01U	1	
C119-23	ECUENA104KBQ	10V 0.1U	5	
C124,25	ECUE1C103KBQ	16V 0.01U	2	
C127	ECUE1C223KBQ	16V 0.022U	1	
C128	ECUENA104KBQ	10V 0.1U	1	
C129	ECUENC333KBQ	16V 0.033U	1	
C138	ECUENA104KBQ	10V 0.1U	1	
C201	ECUE1C103KBQ	16V 0.01U	1	
C202	ECUE1H101KBQ	50V 100P	1	
C203	RCST0GZ106RG	4V 10U	1	
C204	ECUENA104KBQ	10V 0.1U	1	
C206	ECUE1H101KBQ	50V 100P	1	
C210	ECUE1C103KBQ	16V 0.01U	1	
C211	ECUV0J474KBV	6.3V 0.47U	1	
C212	ECUE1C103KBQ	16V 0.01U	1	
C220,21	ECUVNA224KBV	10V 0.22U	2	
C301,02	ECUE1H221KBQ	50V 220P	2	
C303	RCST0GZ226RG	4V 22U	1	
C304-06	ECUENA104KBQ	10V 0.1U	3	
C307	RCST0GZ106RG	4V 10U	1	
C308	ECUENA104KBQ	10V 0.1U	1	
C309-11	ECUENC333KBQ	16V 0.033U	3	
C318	ECUVNA224KBV	10V 0.22U	1	
C319,20	ECUENC333KBQ	16V 0.033U	2	
C323-25	ECUE1H222KBQ	50V 2200P	3	
C330-33	ECUVNJ105KBV	63V 1U	4	
C401	EEVMC0G221P	4V 220U	1	
C404	EEFCD0J470R	6.3V 47U	1	
C406,07	RCST0GZ106RG	4V 10U	2	
C408	RCST0GZ226RG	4V 22U	1	

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Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C410	ECUENA104KBQ	10V 0.1U	1	
C411	ECUE1C103KBQ	16V 0.01U	1	
C501	RCST0GZ106RG	4V 10U	1	
C502	ECUENA104KBQ	10V 0.1U	1	
C504	ECUVNJ105KBV	63V 1U	1	
C505	RCST0GZ106RG	4V 10U	1	
C506	ECUVNJ105KBV	63V 1U	1	
C507,08	RCST0EX227RE	2.5V 220U	2	
C509	RCST0GZ106RG	4V 10U	1	
C510	ECUENC333KBQ	16V 0.033U	1	
C511,12	ECUE1H102KBQ	50V 1000P	2	
C513,14	ECUVNA224KBV	10V 0.22U	2	
C516	ECUE1C103KBQ	16V 0.01U	1	
CP1	RJS2A7121T	CONNECTOR(21P)	1	
CP301,02	RJS2A7104T	CONNECTOR(4P)	2	
D402	F1J2ETP	DIODE	1	
IC1	LA9607T-TFM	IC	1	
IC101	LC89642-8A	IC	1	
IC201	MN101C28DAD1	IC	1	
IC202	AK93C45BH-L	IC	1	
IC203	XC61AC1902MR	IC	1	
IC301	BD6605KVT	IC	1	
IC402	XC6367A231MR	IC	1	
IC501	NJM2171ARTE1	IC	1	
JK501	RJJ36TA02-C	JACK,HEADPHONE	1	
L201	RLQP100MT-W	COIL	1	
L301-04	RLQP100MT-W	COIL	4	
L305	ELJEA470KF	COIL	1	
L306	RLQP100MT-W	COIL	1	
L402	RLZ0041T-T	COIL	1	
L403,04	RLQP100MT-W	COIL	2	
L501	RLQP100MT-W	COIL	1	
L502,03	RLBV601V-W	COIL	2	
P1	RPK1348	PACKING CASE	1	
P2	RPF0257-1	PROTECTION BAG	1	
P3	RPQ0575	PAD	1	
PCB1	REP2901B-M	MAIN P.C.B.	1	(RTL)
Q1	2SB1295-6-TB	TRANSISTOR	1	
Q2	DTC144EETL	TRANSISTOR	1	
Q5	XP152A12C0MR	FET	1	
Q201	2SD1819ASTX	TRANSISTOR	1	
Q202	2SB1295-6-TB	TRANSISTOR	1	
Q401	XP151A13A0MR	FET	1	
Q403	XP152A12C0MR	FET	1	
Q404	2SD1819ASTX	TRANSISTOR	1	
Q406	2SB1218ASTX	TRANSISTOR	1	
Q501,02	2SK2731T146	FET	2	
Q504	DTC144TETL	TRANSISTOR	1	

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Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R1	ERJ2GEJ821X	1/4W 820	1	
R2	ERJ2GEJ104X	1/4W 100K	1	
R3	EXB24V113JX	1/16W 11K	1	
R4	ERJ2GEJ391X	1/4W 390	1	
R6	ERJ2GEJ823X	1/4W 82K	1	
R7	ERJ2GEJ223X	1/4W 22K	1	
R8	ERJ2GEJ474X	1/4W 470K	1	
R9	ERJ2GEJ105X	1/4W 1M	1	
R20,21	ERJ2GEJ104X	1/4W 100K	2	
R24	ERJ2GEJ393X	1/4W 39K	1	
R40	ERJ2GEJ1R0X	1/4W 1	1	
R101	ERJ2GED683X	1/4W 68K	1	
R102	ERJ2GEJ103X	1/4W 10K	1	
R103	ERJ2GEJ334X	1/4W 330K	1	
R104	ERJ2GEJ564X	1/4W 560K	1	
R105	ERJ2GEJ683X	1/4W 68K	1	
R106	ERJ2GED113X	1/4W 11K	1	
R107	ERJ2GEJ103X	1/4W 10K	1	
R108	ERJ2GEJ104X	1/4W 100K	1	
R109	ERJ2GEJ473X	1/4W 47K	1	
R113	ERJ2GEJ473X	1/4W 47K	1	
R114	ERJ2GEJ474X	1/4W 470K	1	
R122	ERJ2GEJ470X	1/4W 47	1	
R125	ERJ2GEJ332X	1/4W 3.3K	1	
R126	ERJ2GEJ682X	1/4W 6.8K	1	
R127	ERJ2GEJ333X	1/4W 33K	1	
R128	ERJ2GEJ391X	1/4W 390	1	
R130	ERJ2GEJ562X	1/4W 5.6K	1	
R131	ERJ2GEJ332X	1/4W 3.3K	1	
R201	EXB24V103JX	1/16W 10K	1	
R202	ERJ2GEJ332X	1/4W 3.3K	1	
R203	ERJ2GEJ221X	1/4W 220	1	
R204	ERJ2GEJ332X	1/4W 3.3K	1	
R205	ERJ2GEJ682X	1/4W 6.8K	1	
R206	ERJ2GEJ223X	1/4W 22K	1	
R207	ERJ2GEJ471X	1/4W 470	1	
R208	EXB28V224JX	1/32W 220K	1	
R210	ERJ2GEJ224X	1/4W 220K	1	
R214	ERJ2GEJ334X	1/4W 330K	1	
R218	ERJ2GED273X	1/4W 27K	1	
R219	EXB28V103JX	1/32W 10K	1	
R225	ERJ2GEJ223X	1/4W 22K	1	
R230	EXB24V103JX	1/16W 10K	1	
R231	ERJ2GEJ104X	1/4W 100K	1	
R301	ERJ2GEJ103X	1/4W 10K	1	
R302	ERJ2GEJ105X	1/4W 1M	1	
R303	ERJ2GEJ103X	1/4W 10K	1	
R304	ERJ2GEJ1R0X	1/4W 1	1	
R313	EXB24V473JX	1/16W 47K	1	
R401	ERJ2GEJ225X	1/4W 2.2M	1	
R404	ERJ2GEJ274X	1/4W 270K	1	
R405	ERJ2GEJ105X	1/4W 1M	1	
R501	EXB24V472JX	1/16W 4.7K	1	

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Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R504	EXB24V153JX	1/16W 15K	1	
R505	EXB24V821JX	1/16W 820	1	
R506	EXB24V225JX	1/16W 2.2M	1	
R507,08	EXB24V472JX	1/16W 4.7K	2	
R509	ERJ2GEJ270X	1/4W 27	1	
R510,11	ERJ2GEJ104X	1/4W 100K	2	
RX229	ERJ2GEJ104X	1/4W 100K		
RX901	ERJ3GEYJ103Z	1/16W 10K		
S201,02	RSG0038-P	SW,VOLUME +/-	2	
S203,04	EVQPUL02K	SW,SKIP	2	
S206	EVQPUL02K	SW,PLAY/STOP	1	
S207	RSH1A036-A	SW,COVER OPEN DET.	1	
S208	RSS2A010-1A	SW,HOLD	1	
X101	EFJC1695G3A	OSCILLATOR	1	
X201	RSXY6M00M04T	OSCILLATOR	1	
Z401	RJH9212-1	CONNECTOR TERMINAL	1	

15.2. Cabinet Parts Location

15.3. Packaging

Printed in Japan (H000105800 KA/HH)

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